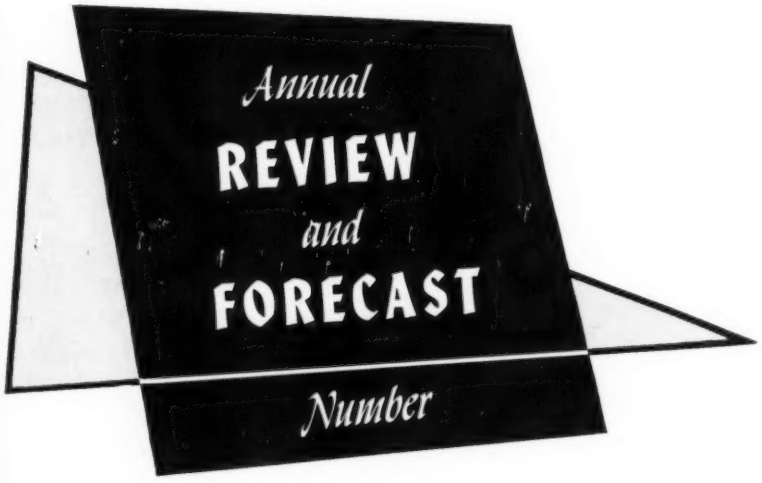
TEXTILE WORLD

A McGraw-Hill Publication ..... **FEBRUARY • 1953**

WHITE HORSE MILL—
The South's Newest Cotton Mill

Camera Tour starts on page 112



Starts on page 91

ARTICLES IN THIS ISSUE DISCUSS:

Your Time Is Valuable (Editorial).... 4
Annual Review and Forecast..... 91
SRRL Mechanizes the Fibrograph....107
How To Figure Knitting Costs.....108
DAP Process Improves Wool Dyeing..110
Running Synthetics on Wool Systems.111
The South's Newest Cotton Mill....112
Exposition Brings 220 Looms Up to Date 22
How Mills Use Colloidal Silica.....119
Techniques Keep Dyehouse Modern..120
TRI Annual Meeting.....122
Ardil Fiber Blends Best With Wool..125
Care of Electric Motors.....126
Tables Make Fabric-Matching Easier.128
Doffer-Cost Calculations 131
Cutters and Mill Men Discuss Tricot..133
A Look at Metallic Card Clothing....135
Cluett-Peabody's New Slashers.....137
Tests for Vinyl-Coated Fabrics.....141
Check Your Opening and Picking...143

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INDEX to ADVERTISERS
Keyed by PRODUCTS
See Page 331

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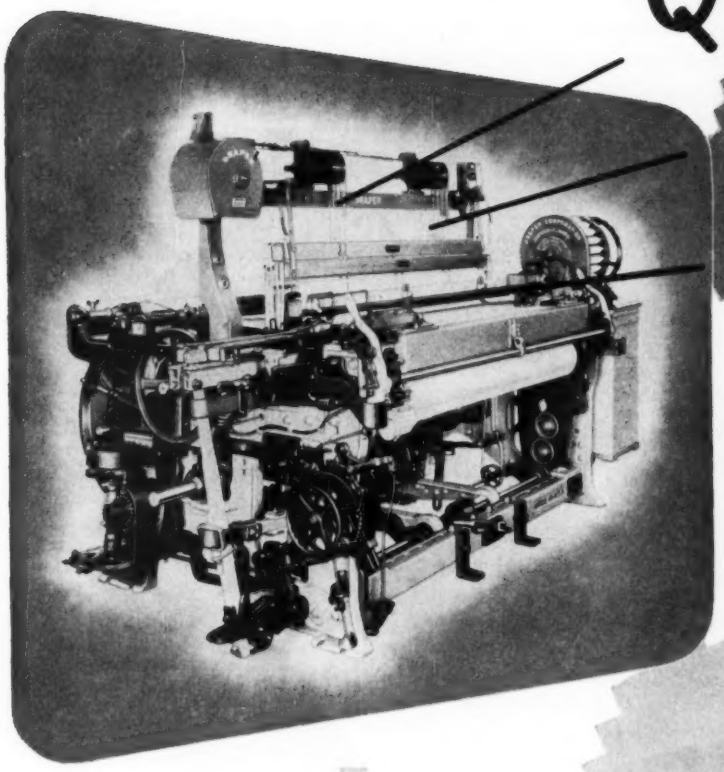

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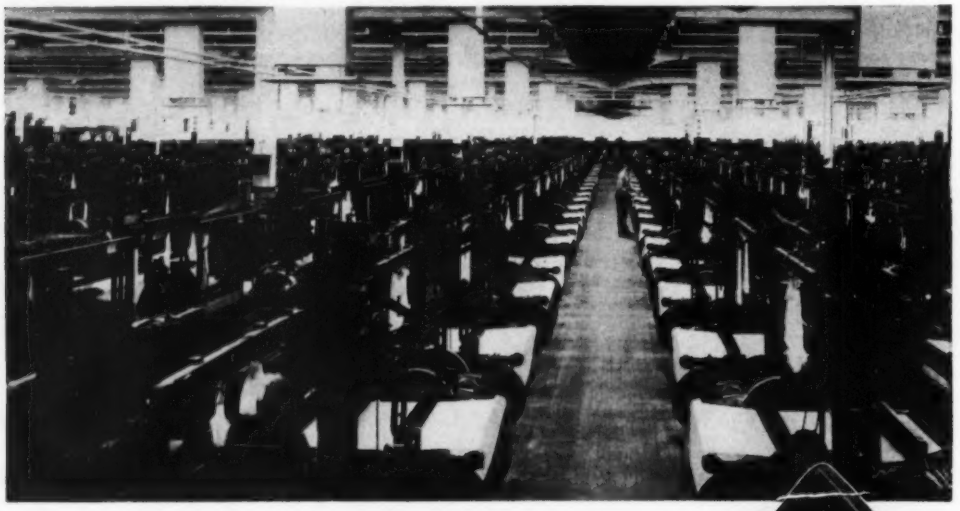

The Heim Sweepstick incorporates such entirely new and revolutionary principles that one can't help but wonder how the old sweepstick, which gave such an uneven pick action and had a tendency to enlarge its stud hole through constant wear, could have remained unimproved for so long.

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DEPARTMENTS

Editorial	4
Exploring the Textile Community	145
Kinks and Short-Cuts	165
Mill Maintenance	264
News About Men	312
News About Mills	302
News About Suppliers	294
News of the Month	286
Obituary	316
Pointers for Supervisors	164
Questions and Answers	242
Reader Service	179
Reviews of Books	214
Round Table	163
Textile Equipment News	147
Textile Calendar	284
Textile Tickles	163
Useful Accessories	254
Advertisers' Index	331

Table of Contents

FEBRUARY • 1953
Vol. 103 No. 2

KEYED ACCORDING TO READER INTEREST

SPINNER WEAVER KNITTER FINISHER ENGINEER — COTTON SYNTHETICS WOOL

Feature Articles

Y	W	K	F	E	Your Time Is Valuable (Editorial)	4	C	S	W
Y	W	K	F	E	Annual REVIEW AND FORECAST Section	91	C	S	W
Y					SRRL Mechanizes the FIBROGRAPH	107	C		
		K			To Show a Profit, Figure KNITTING COSTS	108	C	S	W
			F	E	DAP PROCESS Improves Wool Dyeing	110			W
Y					Running SYNTHETICS on Wool Systems	111		S	W
Y	W	K	F	E	The South's Newest COTTON MILL	112	C	S	W
Y	W	K	F	E	Exposition Brings 222 LOOMS Up to Date	118	C	S	W
Y					How Mills Use COLLOIDAL SILICA	119		S	W
			F	E	Techniques Keep This DYEHOUSE Modern	120	C	S	W
Y	W	K	F	E	TRI Annual Meeting	122	C	S	W
Y	W	K	F	E	ARDIL Fiber Blend Best With Wool	125	C	S	W
Y	W	K	F	E	How To Take Care of ELECTRIC MOTORS	126	C	S	W
Y	W	K	F	E	Tables Make FABRIC-MATCHING Easier	128	C	S	W
Y					Constants Speed DOFFER-COST Calculations	131	C	S	
			F	E	Cutters, Mill Men Discuss TRICOT Quality	133		S	
	W			E	Cluett-Peabody's New SLASHERS, Controls	137	C	S	W
Y					Another Look at METALLIC CARD CLOTHING	139	C		
			F	E	Test Procedures for VINYL-COATED FABRICS	141	C	S	W
Y					Check Your OPENING and PICKING	143	C		

Textile Equipment News

Y					Roving and Spinning DRAFTING Improved	147	C	S	W
Y					Bramwell Feed Has Variable-Speed APRON	148	C	S	W
Y	W				Rectilinear COMB Handles Short Wools	148			W
Y					TOP ROLLS Are Easy To Disassemble	150	C	S	W
Y					SPINDLE Has No Flyer, Ring, or Traveler	150	C	S	
			F		PACKAGE-DYEING Unit Uses High Pressures	150	C	S	W
	W				SIZE on Warps Automatically Controlled	152	C	S	
	W				Shuttleless LOOM Uses Air	152	C	S	W
Y					Grease-Sealed TOP ROLLS	154	C	S	W
			F		Battery-Powered pH METER	154	C	S	W
				E	SPEED-REDUCTION Units Easily Mounted	154	C	S	W
			F		Detergency TESTER Offers Economies	156	C	S	W
			F	E	CYLINDER Gives Control of Liquid Level	156	C	S	W
				E	INTEGRATOR Speeds Lab Test Results	156	C	S	W
		K	F		Pedestal MOUNTINGS for Sewing Machines	158	C	S	W
	W				Double-Slotted Twister BOBBINS	158	C	S	W
Y					Plug GAUGE Tests Spindle Bolsters	158	C	S	W
	W				Laminated-Plastic VIBRATION BLOCKS	232	C	S	W
			F		Visual COLOR-MATCHING Device	234	C	S	W
	W				Constant-Delivery PUMP	236	C	S	
			F		Measuring COUNTERS Are Versatile	238	C	S	W
Y					Detachable Plastic SKEWER BASE	240	C	S	W
			F		ASSEMBLY Makes Titrators of pH Meters	240	C	S	W

Kinks and Short-Cuts

Y	W				Midget WINDER Determines Yarn Diameter	165	C	S	W
Y	W	K	F	E	Don't Burn the BENCH	165	C	S	W
Y					PIN BOARDS Keep Nylon Roving Clean	165		S	
Y					Moving CARDS? Try This Method	166	C	S	W
Y					RACK Makes Disposal of Empty Cones Easy	168	C	S	W
Y	W	K	F	E	SPIRIT LEVEL Helps You Drill Vertically	168	C	S	W
		K	F		Stop Splinters With a LINOLEUM Top	168	C	S	W
	W				Doff CLOTH With Less Effort	170	C		
		K			Try This Detachable LINK	170		S	
		K	F		How We Set Our Own Small TRICOT Samples	172	C	S	
				E	Use WRENCH To Remove Small Lathe Chucks	172	C	S	W
				E	How To Find LEAKS In Your Air Lines	172	C	S	W
		K			WASHER Helps Produce Neater Looping Job	174	C	S	W
Y	W	K	F	E	An Inside SLOT Saves an Outside Man	174	C	S	W
Y					Wind on Cones To Reduce REELING COST	176	C	S	W

THE *Long-Range* VIEW

Your Time Is Valuable

Successful men know that their most precious commodity is time. They also know that success can be measured largely by how well the individual can recognize and separate essential and nonessential activity and concentrate on the essential.

It is easy to be swamped by activities that may be interesting in themselves or may contribute indirectly to a primary activity. But the true worth of such things should be measured quite cold-bloodedly against primary objectives.

We have known mill men who were a veritable tornado of activity and others who seemed to be doing nothing. Yet in the end accomplishments were about the same, and often the tornado had done little more than knock himself out.

We've seen mill organizations that closely parallel these cases of individuals. A short time ago we visited two yarn mills that illustrate this point. One of the mills is constantly engaged in changes that it calls modernization. The other was also modernizing but in an entirely different way. The difference was that the latter mill sticks to fundamentals and the former engages in fringe modernization. The latter is producing cotton yarns 4¢ per lb. cheaper than the former.

The best way we know of to keep yourself, your job, and your mill on the beam is to write down your major objectives and measure every activity against that list. Any activity that does not contribute to the realization of one of those primary objectives should be discarded; it will only consume valuable time and detract that much from your real success. Moves that do help attain one of the fundamentals can be compared in importance by measuring how much each contributes.

The fundamental objectives of every mill and mill man are to:

1. **Increase production**
2. **Cut costs**
3. **Improve quality**
4. **Improve personnel relations and working conditions to help accomplish Points 1, 2, and 3**

Everyone will recognize that these tasks must be correlated. Production can be increased in nearly every mill and at almost every machine. But the higher production may actually increase costs and lower quality. In the same way, costs may be cut or quality improved at the expense of the other objectives. So this, or any, list of objectives must be used with intelligence and caution.

In looking over the four points, you will see that to profit by them:

1. Positive action is required.

Every one of the four points involves doing something. You and your mill are at a given point at this moment. To accomplish any of the four objectives, you must make a definite forward move.

Philosophers like to talk about the "flux of life," economists about "seething readjustments," and teachers about the "battle of life." What these phrases amount to is that you, as a mill man, cannot stand still. The textile industry is moving forward rapidly. Conservatism and caution, without intelligent positive action, can lead only to being caught in the backwash of the industry's progress.

2. You must be well informed.

We can think of nothing more futile than to know you must do something and not know what to do. The first step obviously is to keep posted on all the things that can help attain the four objectives.

It is surprising how many mill men fail to do that. Golf courses, football stadiums, baseball stands, radio and television rooms, and fishing spots are filled with them. With so many sources continuously giving out information these men could profit by, it is amazing that so many mill men can dodge so much of it.

3. You must make intelligent selections.

So many courses of action can be engaged in that your full time could be frittered away on unimportant or less-important things, while richly rewarding actions slip by.

Two abilities lacking by far too many mill men are imagination and adaptation. Too many want a blueprint and a guarantee, and too many either do nothing or hop on the bandwagon of a trend developing in the industry. What is needed is more intelligent analysis and appraisal. Every important move should be fully explored, its cost in time and money calculated, and its benefits measured against the cost and also against other possible moves.

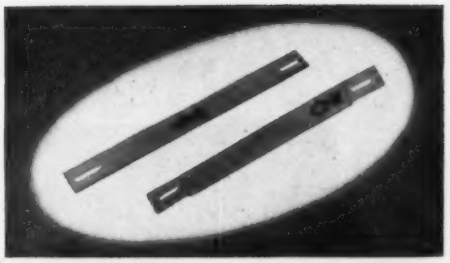
In one way or another and to some degree or other, all successful men follow the course outlined here. Probably a large majority do it more or less unconsciously and on the basis of experience. It is our belief that any mill man who is willing to work and think for success can benefit more rapidly by consciously and seriously adopting this, or a similar, checklist for making the most of his time and effort.

A. M. Thomas

Tannate® TEXTILE LEATHERS

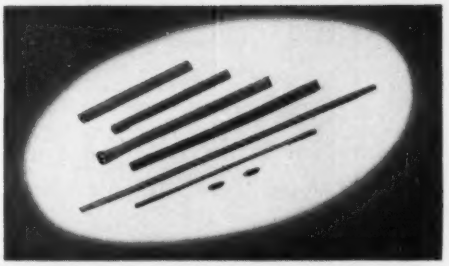
Tannate® CHECK STRAPS

Rhoads BiCut Check Straps are tough and resilient—are cut on the bias to allow the body of the strap to drop clear of binder bolt and nut and permit the edges of the strap to flare accommodating the angle of the picker stick. Straight Check Straps are cut from the same special tanned leather as BiCut; are well stretched, firm, long wearing and dependable.



Tannate® HARNESS & JACK STRAPS

Rhoads Harness and Jack Straps offer minimum stretch, plus high tensile strength and long life. They are cut to your specifications from leathers especially tanned and finished for strapping leather.



Tannate® LUG & HOLDUP STRAPS

Rhoads Lug Straps are made four-ply, folded and stitched. They are smooth, uniform and carefully finished. Produced in sizes to meet your requirements Rhoads Holdup Straps are die-cut to your specifications.

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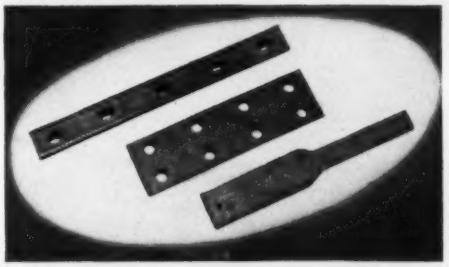

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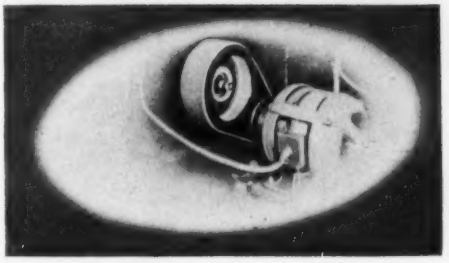

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16/1	12% 3 Denier Nylon-2½" 38% 3 Denier Acetate-2½" 50% 3 Denier Dull Viscose-2½"	28/1	20% Australian Top-64's 80% Acrilan 3 Denier-3"
14/1	60% 64's Australian Top 4% Orlon-3 denier-3"	28/1	100% Orlon 3 Denier-2½"
16/1	7% 3 Denier 3" Nylon-2½" 43% 3 Denier Acetate-2½" 50% 3 Denier Dull Viscose-2½"	30/1	100% Nylon 3 Denier-3" 12½% 64's Australian Top
26/1	80% 3 Denier Dacron-3" 20% Australian Top-64's	32/1	80% Nylon 3 Denier-3" 7½% Dull Viscose 3 Denier-3"

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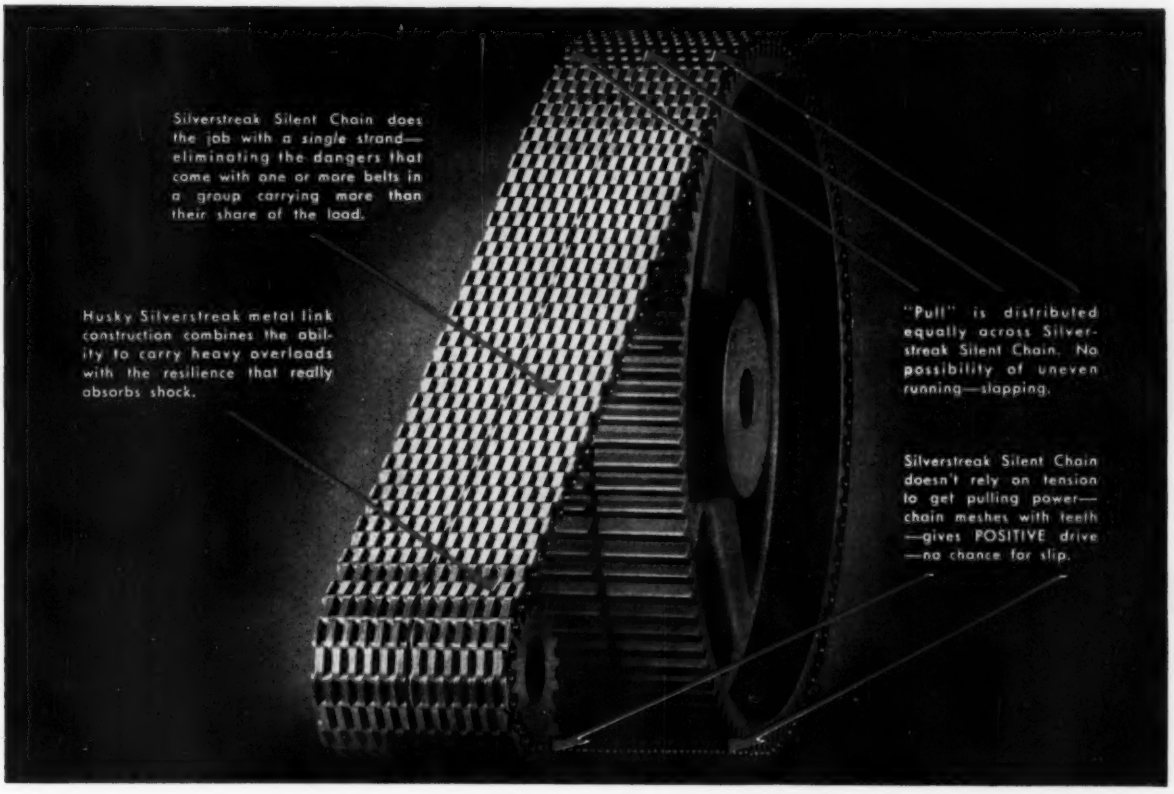
Silverstreak Silent Chain does the job with a single strand—eliminating the dangers that come with one or more belts in a group carrying more than their share of the load.
Husky Silverstreak metal link construction combines the ability to carry heavy overloads with the resilience that really absorbs shock.
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Link-Belt Silverstreak Silent Chain drives are slip-proof...slap-proof...shock-proof

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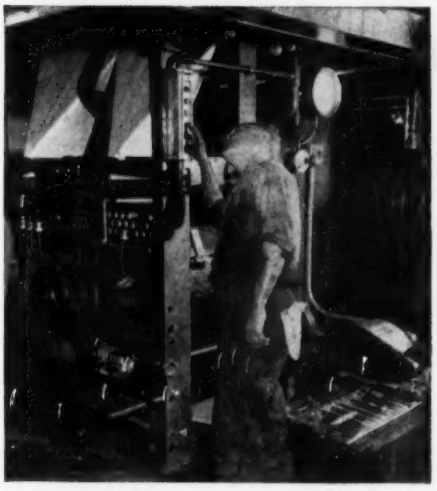

As it has since 1940, a touch of the control button brings exact press speeds at the New York Herald Tribune. In those 12 years, there has been no replacement required on the two 100 hp Silverstreak Silent Chain Drives that power this press at chain speeds up to 3664 fpm.

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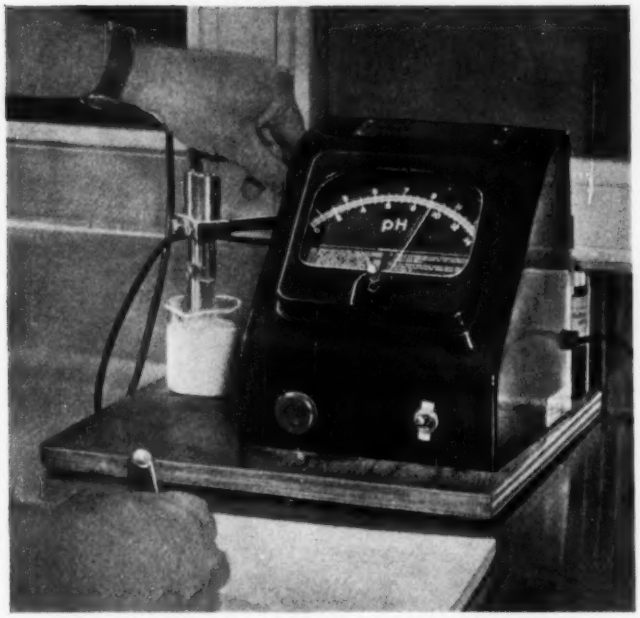
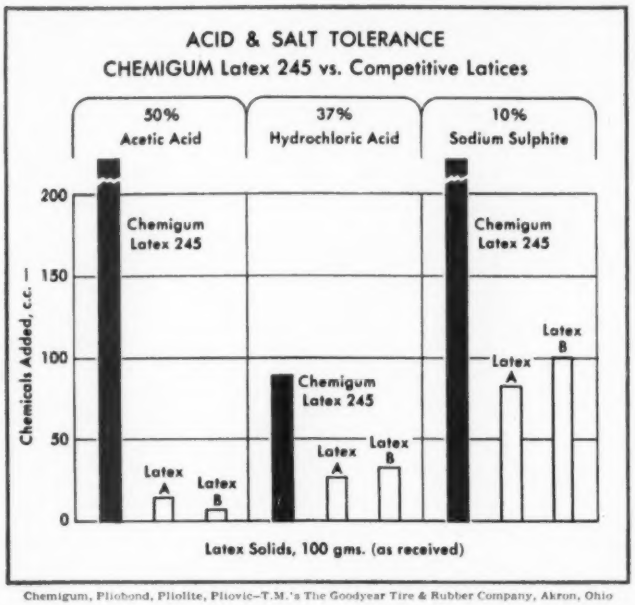
gives you Easier, Safer, Wider use of



Laboratory tests prove the greater acid-salt tolerance of CHEMIGUM. Graph shows the much larger amounts of acids and salts required to coagulate CHEMIGUM Latex 245 compared to other latices.



Chemigum, Pliobond, Pliolite, Pliovic–T.M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

CHEMIGUM LATEX

The use of synthetic latices in textile finishes is rapidly increasing. And textile chemists are finding CHEMIGUM Latex the most versatile of these materials.

Main reason is the added acid-salt tolerance of CHEMIGUM Latex. This greater stability–made possible by a special stabilization system–permits the use of CHEMIGUM where acids present would coagulate normal latices, where solutions may be buffered with salts, where unavoidable contamination exists, or where a wide range of compatibility is needed. It prevents premature coagulation – permits greater freedom in handling.

A non-toxic water-emulsion, CHEMIGUM Latex is used in many specialty finishes where advantage is taken of its binding and adhesive action, its abrasion resistance, and its resistance to soaps, detergents, and solvents. Improved appearance, excellent hand and drape, increased strength, and higher dimensional stability are other properties imparted.

If you are looking for a low-cost, easy-processing finish with exceptional properties, look into CHEMIGUM Latex. Check also on the PLIOLITE and PLIOVIC latices. You'll find technical assistance and samples freely given. Just write to:

Goodyear, Chemical Division, Akron 16, Ohio

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OPPORTUNITY for mills dyeing wool!

CERTIFICATE OF LICENSE

issued to

Chnungsy Textile Co.

WHEREAS, Victor Chemical Works, having its main office at 141 W. Jackson Boulevard, Chicago 4, Illinois, is the owner of United States Patents numbers 2,590,847 and 2,593,850, both relating to the dyeing of wool in baths containing dibasic ammonium phosphate;

And whereas, Victor Chemical Works is desirous of improving such dyeing operations by promoting the use of the products and processes of such patents;

Now, therefore, Victor Chemical Works grants unto Chnungsy Textile Co.

a free, nonexclusive, nontransferable license to practice the processes and use the products of said patents throughout the United States, its territories and possessions, from the date hereof, and throughout the life of these patents.

VICTOR CHEMICAL WORKS

Secretary — President

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Dated

Victor Diammonium Phosphate Process Offers 9 Advantages

1. Greatly improved conditioning of the cloth before dyeing begins.
2. A proper starting alkalinity to provide for dye penetration.
3. A gradual and automatic increase in acidity that improves fixation and dye exhaust.
4. Uniformity of process.
5. Increased levelness of dyeing.
6. Efficient use of dyestuff.
7. Saves time and money because of fewer rejects.
8. Ready availability of diammonium phosphate of highest quality, and at low cost.
9. Process requires no major changes . . . standard equipment can be used.

Royalty-free licenses will be issued to companies desiring to use the process and Victor's textile specialists will assist you in the installation. Please write on your company letterhead.

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MODERN MACHINERY FOR WINDING AND WARPING

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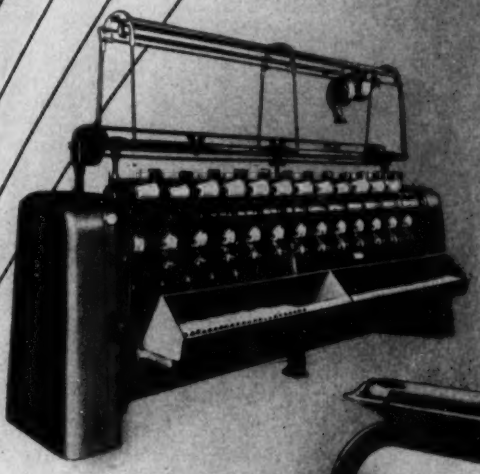

NEW GROOVED CYLINDER
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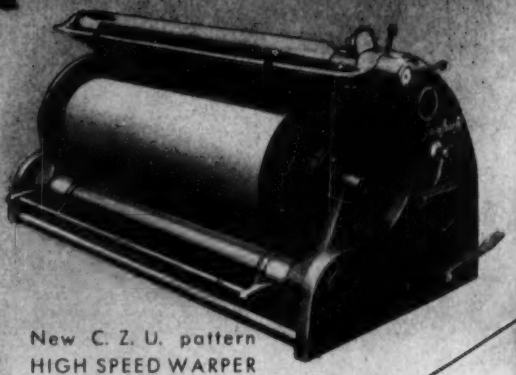
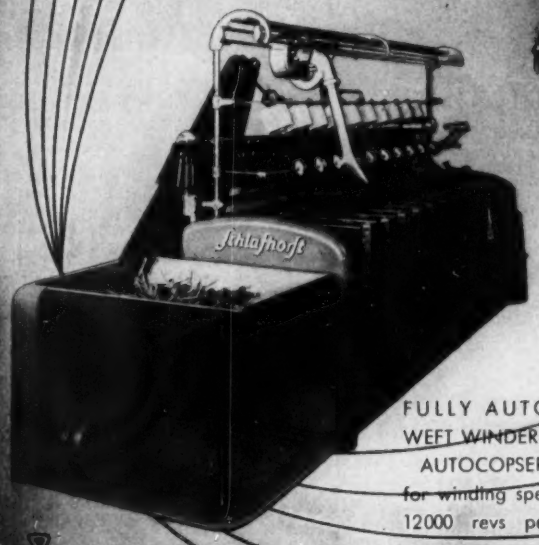
for winding speeds up to
1300 yards per minute



New C. Z. U. pattern
HIGH SPEED WARPER
Extraordinary production
Greatest simplicity



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with electric detectors of our
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In navigation, the gyroscopic principle is used to keep planes straight and level in flight without human controls . . . to guide great ships through storm and wind, closer to their course than a human helmsman could hold them!

DEPENDABILITY IN GARNETTS IS MANY THINGS!

The dependability of Star Woolen's garnetts has become as familiar to the textile industry as the gyroscopic principle has become to navigation, but our dependability is not merely mechanical. It results from our tradition of integrity, from years of experience and from the blending of constant laboratory controls and expert techniques into a flawless production system.

You can ask us for a particular blend of wool and nylon (or any blend of any fibres) and you'll get it 100% as specified, without variation, *with absolute continuity of supply,* time after time. "Why blend your own?" we have asked the industry, and growing numbers of leading textile men are unloading their blending problems on us. We can free *you* from technical anxieties, save you thousands of dollars annually . . . *for we always deliver exactly as specified, lot after lot!*

Send us your requirements; let us know your blending problems. We'll rush you the full, profitable information you want!

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World's Largest Producers of Nylon and Other Synthetic Garnets

Cohoes, New York

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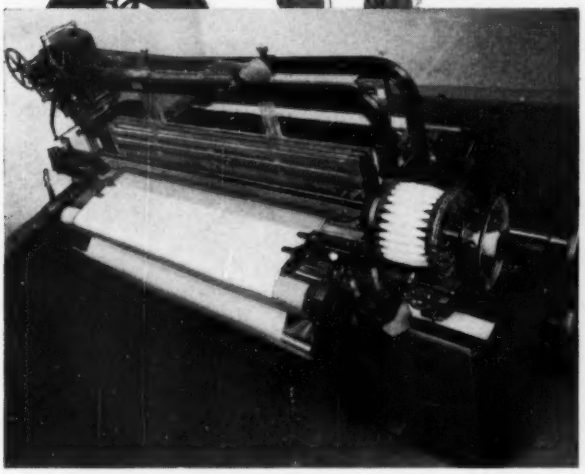
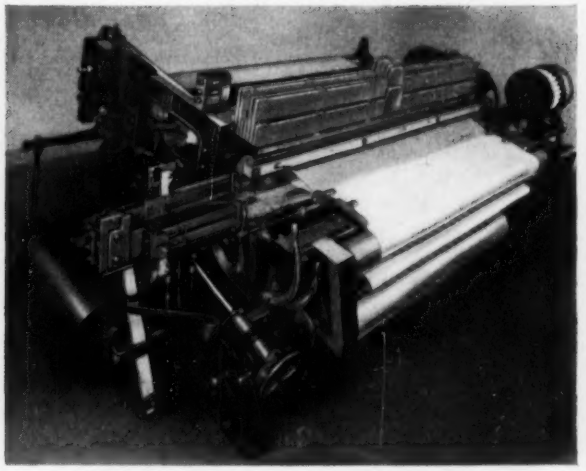
ORDERS FOR "Plain Fare"



NEW C&K 2 x 1 BOX FILLING-MIXING LOOM equipped with rotary magazine . . . and HEAD MOTION.



NEW C&K 2 x 1 BOX FILLING-MIXING LOOM equipped with rotary magazine . . . and END CAM.

. . . install C&K's Newest FILLING-MIXING LOOMS

Yes, you can take orders for single-color production — and make your cloth faster and with more profit than you ever imagined — with these new, single-purpose, rotary magazine looms. These new additions to C&K's long-established line of Filling-Mixing Looms cost less to buy and operate, turn out better cloth at 25% higher speeds . . . mile after mile of it, and *all of it* the same top quality.

Get the whole story on these proven products of C&K's long experience in building Filling-Mixing Looms. *See C&K today.*

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Century

TEXTILE MOTORS

In Action—You can see the lint moving through the ventilating passages

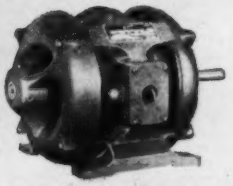
Century Textile motors give you continuous, satisfactory service because they shed dust, dirt and lint. Smooth, clean passages permit cooling air to enter the motor through the end brackets.

There's a steady blast of air that circulates near the bearings, around the windings and out through the large air passages in the frame.

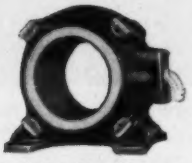
Lint and dust pass through the motor readily. This results in clean surfaces which radiate the heat, and permits the motor to operate at normal temperature.

Century builds a complete line of electric motors from ⅛ to 400 horsepower in a wide range of types and kinds.

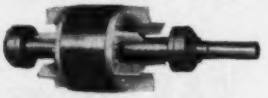
Specify Century for all your textile, or standard motor requirements.



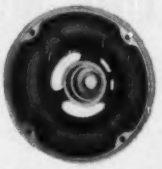
Century Textile motors are ruggedly built for long service life.



Strong, rigid cast iron frame, smooth contours permit free circulation of air.



Rotor assembly with ball bearings in place. Large fans assure adequate ventilation.



Rigid cast-iron end brackets help maintain alignment, help maintain smooth, quiet starting and running.

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Century Electric Company is celebrating its 50th year in the electrical industry

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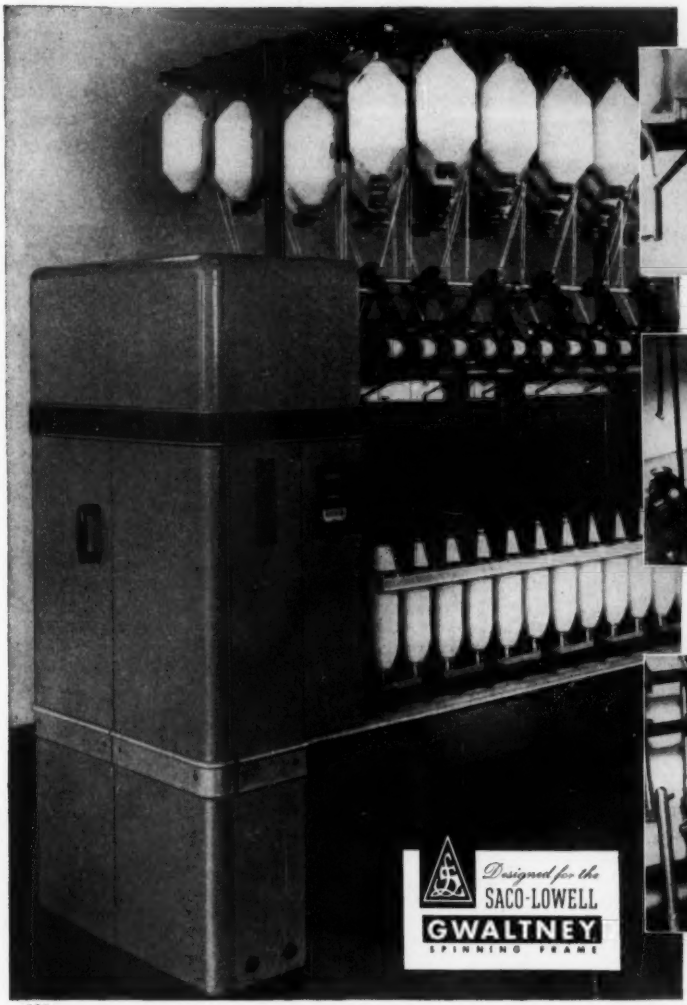
New Departure... is proud to play a part in the new Saco-Lowell Gwaltney Spinning Frame — in the positions indicated:



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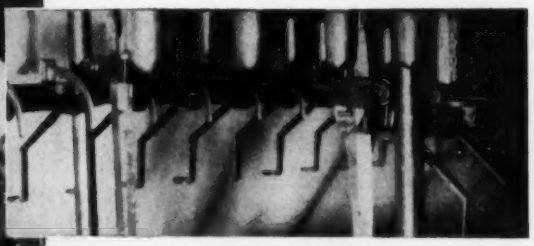
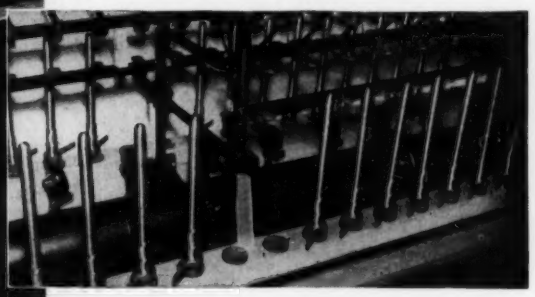
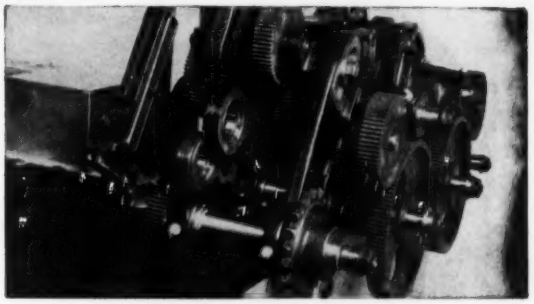


New Departure Ball Bearings in Guide Rolls on Lift Rods

New Departure Ball Bearings in each Tension Pulley



New Departure Ball Bearings in each New Era Spindle



New Departure Ball Bearings in the Drive End Assembly

Nothing Rolls Like a Ball...

NEW DEPARTURE
BALL BEARINGS

NEW DEPARTURE • DIVISION OF GENERAL MOTORS
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TEXTILE THERMOLIER

THE GRINNELL UNIT HEATER

proved and approved, time and again, for it's

Money-saving Air!

- Parallel openings between the web tubes permit air from the fan to pass through and keep heating element clean.
- Safety and durability assured with leak-proof tube-to-header construction.
- Maximum capacity provided at all times and annoying and destructive water hammer eliminated because built-in pitch of tubes and internal cooling leg assures continuous drainage of condensate.
- Plain thermostatic trap, the simplest and least expensive kind of trap, made practical because of Thermolier's exclusive internal cooling leg.

Whenever Textile Thermoliers go in . . . maintenance and heating costs come down! That's warm air . . . "money-saving air" . . . any mill can cash in on.

Textile Thermoliers stop heat waste and extravagant upkeep because of a special heating element. This heating element consists of a series of webbed, pitched U-tubes parallel to one another and assembled into a single header. An extension of the web on the trailing side increases the heat area, while the absence of conventional fin edges minimizes the collection of lint, fly and dust on the heating surface. Get the "money-saving" facts today.

Textile Thermoliers are used by such companies in the textile field as . . .

American Thread Company
Clover, South Carolina
American Yarn & Process Company
Mt. Holly, North Carolina
Avondale Mills
Sylacauga, Alabama
Beaver Creek Weaving Company
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Cannon Mills Company
Kannapolis, North Carolina
Canton Cotton Mills
Canton, Georgia
Chicopee Manufacturing Company
Manchester, New Hampshire
Clark Thread Company
Clarkdale, Georgia
Cone Finishing Company
Haw River, North Carolina
Dan River Mills
Danville, Virginia
Dora Yarn Mills
Cherryville, North Carolina
Dover Mills
Shelby, North Carolina
Exposition Cotton Mills
Atlanta, Georgia
Fulton Bag & Cotton Mills
Atlanta, Georgia
Greenville Mills
Greenville, North Carolina
Jefferson Mills
Crawford, Georgia
A. D. Juilliard Company
Brookford, North Carolina
Lanett Bleachery & Dye Works
Lanett, Alabama
Limestone Manufacturing Company
Gaffney, South Carolina
Manetta Mills
Monroe, North Carolina
Mandeville Mills
Carrollton, Georgia
Mary Leila Cotton Mills
Greensboro, Georgia
Massapoag Mills
Lincolnton, North Carolina
Minette Mills, Inc.
Grover, North Carolina
Newberry Mills
Newberry, South Carolina
Nuway Spinning Company, Inc.
Cherryville, North Carolina
Osage Manufacturing Company
Bessemer City, North Carolina
Park Yarn Mills
Kings Mountain, North Carolina
Parkdale Mills
Gastonia, North Carolina
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Bright color for showroom appeal . . . maximum fastness for value appeal. Combine them in your new prints and weaves by color styling with shades based on National Aniline Vats.
Integrated production from basic raw materials, prompt delivery from nearby warehouse stocks on sample-runs and fill-in orders, practical help on matches and formulas from Technical Service Laboratories in principal textile centers . . . these are all included in the time-saving service you get by phoning National Aniline *first!*
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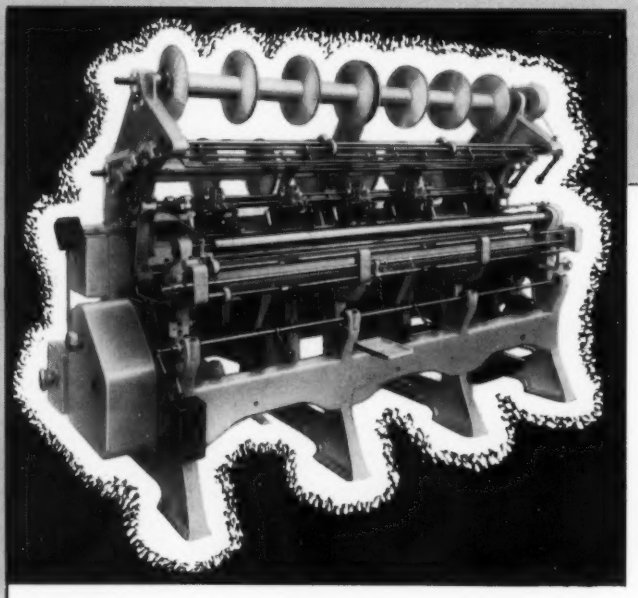

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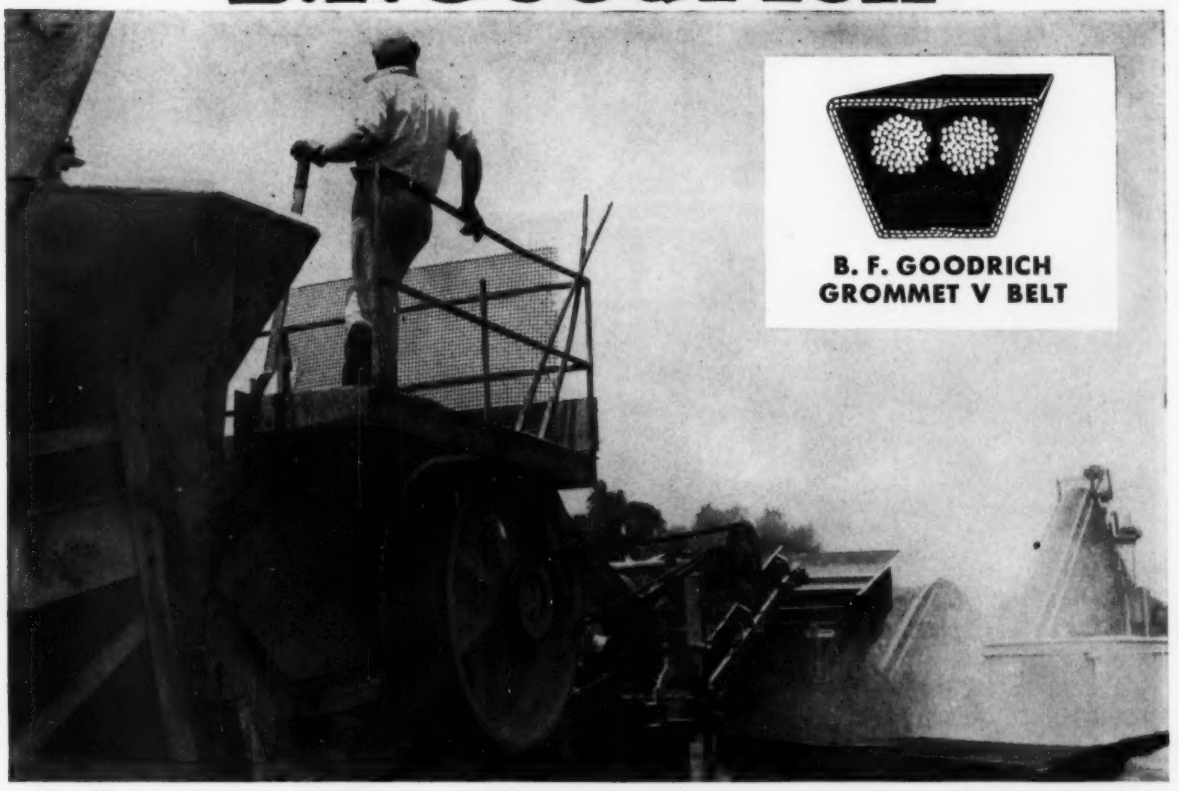
RESEARCH KEEPS **B.F.Goodrich** FIRST IN RUBBER



Where failures meant shutdowns they changed to grommet belts

B. F. Goodrich grommet V belts last 20 to 50% longer

Crushing rock puts terrific shock loads on the V belts that drive the crusher. When the drive stops because of premature belt failure, the whole operation shuts down, deliveries are delayed. The stone company wanted reliability—and got it—when a set of B. F. Goodrich grommet V belts was installed. In spite of the shaking, jolting action, the grommet V belts on this crusher have already given two years of trouble-free service, and are still in excellent condition. Here's why B. F. Goodrich grommet V belts outlast and outperform ordinary belts.

No cord ends

A grommet is endless, made by winding heavy cord on itself to form an endless loop. It has no overlapping ends. Because most of the failures in ordinary V belts occur in the region where cords overlap, the endless cord section in a grommet V belt eliminates such failures.

Concentrated cord strength

All of the cord material in a B. F. Goodrich grommet belt is *concentrated* in twin grommets, positioned close to the driving faces of the pulley. There are no layers of cords to rub against one another and generate heat; cord and adhesion failures are reduced. And grommet V belts stretch less—only ⅓ as much, on an average, as ordinary V belts.

Better grip, less slip

Grommet V belts have more rubber in relation to belt size. Without any stiff overlap, they're more flexible, grip pulleys better. Size for size, grommet belts give ⅓ more gripping power, pull heavier loads with a higher safety factor. Because there is less slip, there is also less surface wear.

They cost no more

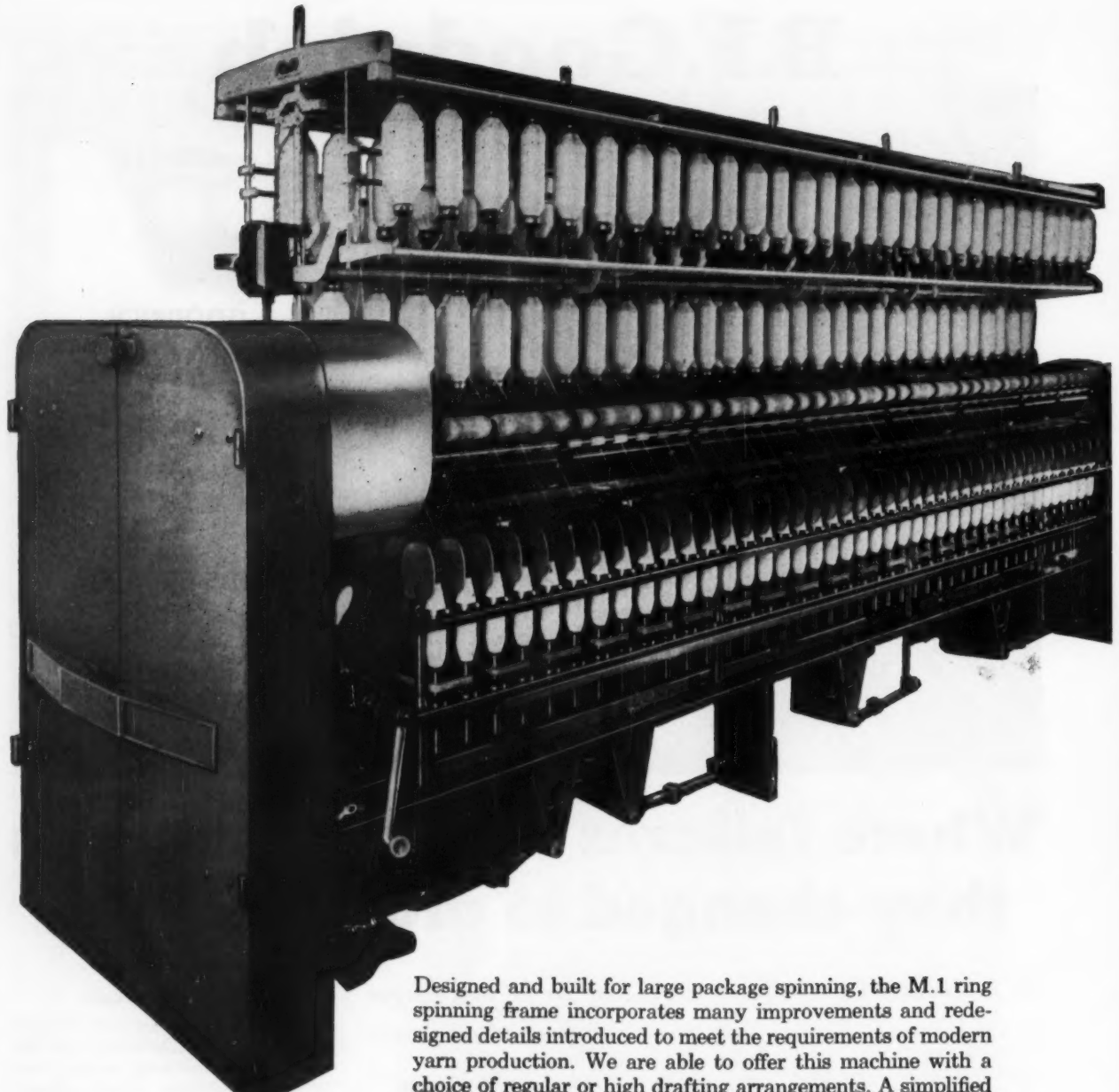
Grommet V belts cut costs because they last longer, increase production because machines keep running with fewer interruptions, reduce maintenance costs because they need less attention, yet they cost not one cent more. Available in C, D and E sections. But remember, only B. F. Goodrich makes the grommet V belt (U. S. Patent No. 2,233,294), so to get all these savings, call in your local BFG distributor the next time you need V belts, or write *The B. F. Goodrich Company, Industrial & General Products Division, Akron, Ohio.* (Available in Canada)

Grommet V-Belts BY

B.F.Goodrich

RUBBER FOR INDUSTRY

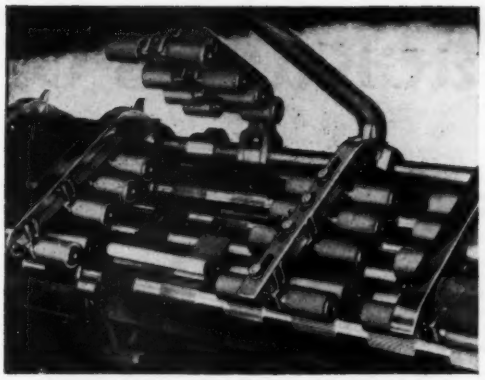
For more information, write direct or use Reader Service post card.



Designed and built for large package spinning, the M.1 ring spinning frame incorporates many improvements and redesigned details introduced to meet the requirements of modern yarn production. We are able to offer this machine with a choice of regular or high drafting arrangements. A simplified headstock gearing combines maximum flexibility with a more efficient drive and reduces power consumption. Centralized headstock lubrication allows the frame to be oiled while running. A combination building motion may be used which enables three types of build to be obtained on the same frame by means of simple adjustments. The Pneumafil system of broken end collection is normally fitted. May we send you full data.

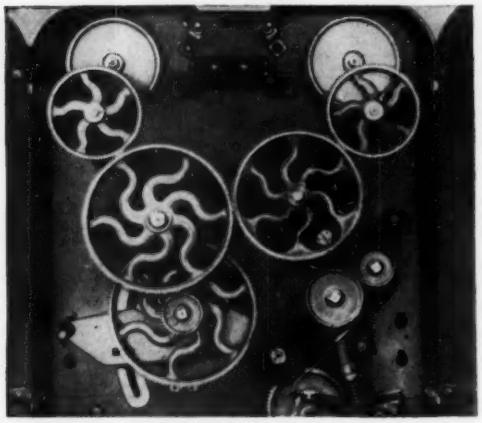
M1 LARGE PACKAGE RING SPINNING FRAME

PLATT BROS.
SALES LTD. OLDHAM, ENGLAND



NEW! SPRING ARM ROLLER WEIGHTING

Weight hooks and stirrups are gone. New spring arm adjusts to a wider range of staple lengths without altering the nip pressure. Resilience and pressure remain correct even after regrinding cots. Instant pressure release saves cots over week-ends. Central roller support arm raises for quick cleaning of ALL rollers. Few oilings are needed and none near the cots. (Pat Pend.)

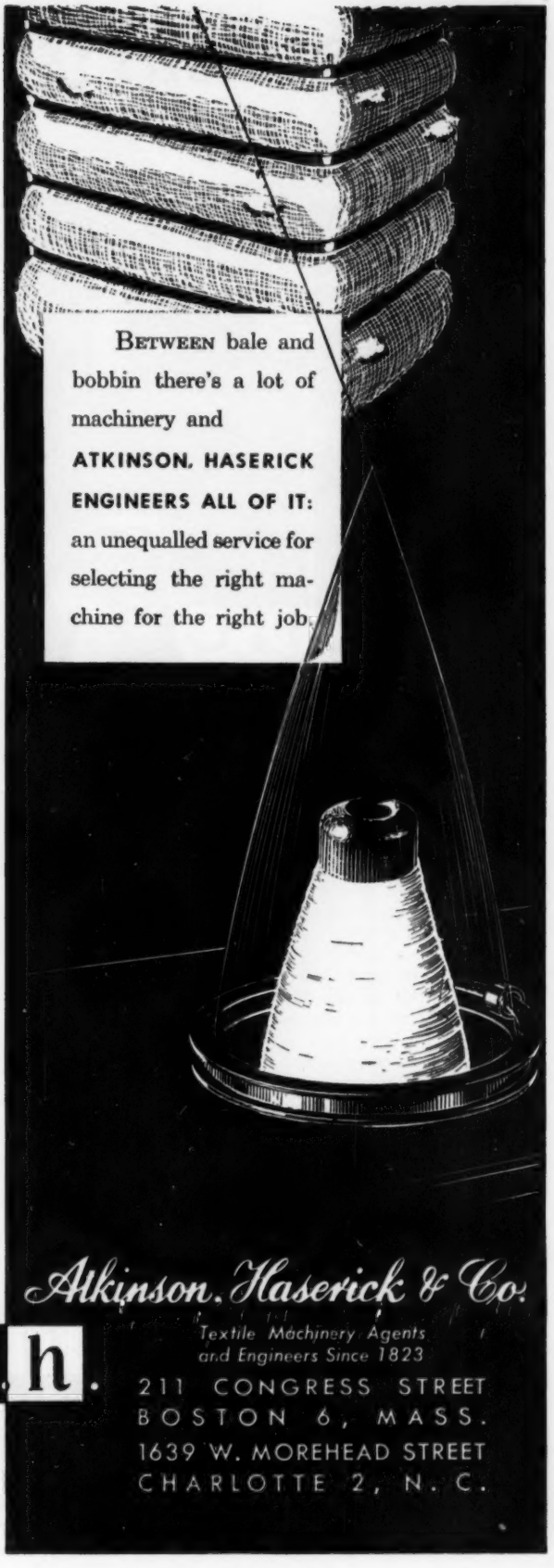


SIMPLIFIED HEADSTOCK

Headstock gearing has a central lubrication system allowing frame to be oiled while running and avoids excess or under lubrication. Simplified gearing combines flexibility of turns per inch while using fewer gears. Greater efficiency is attained and less power consumed.

HIGH SPEED SPINDLE

Cut-away, shows the heavy load, roller bearing spindle for large packages with long lifts. It is of the oil cushion ring brake insert design. They need routine maintenance at only 2,500 hour intervals. Power savings run up to 15% on this type of spindle.


BETWEEN bale and bobbin there's a lot of machinery and
ATKINSON, HASERICK ENGINEERS ALL OF IT:
an unequalled service for selecting the right machine for the right job.
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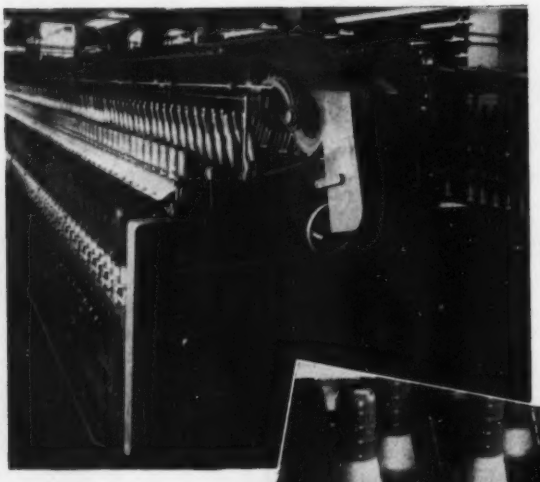
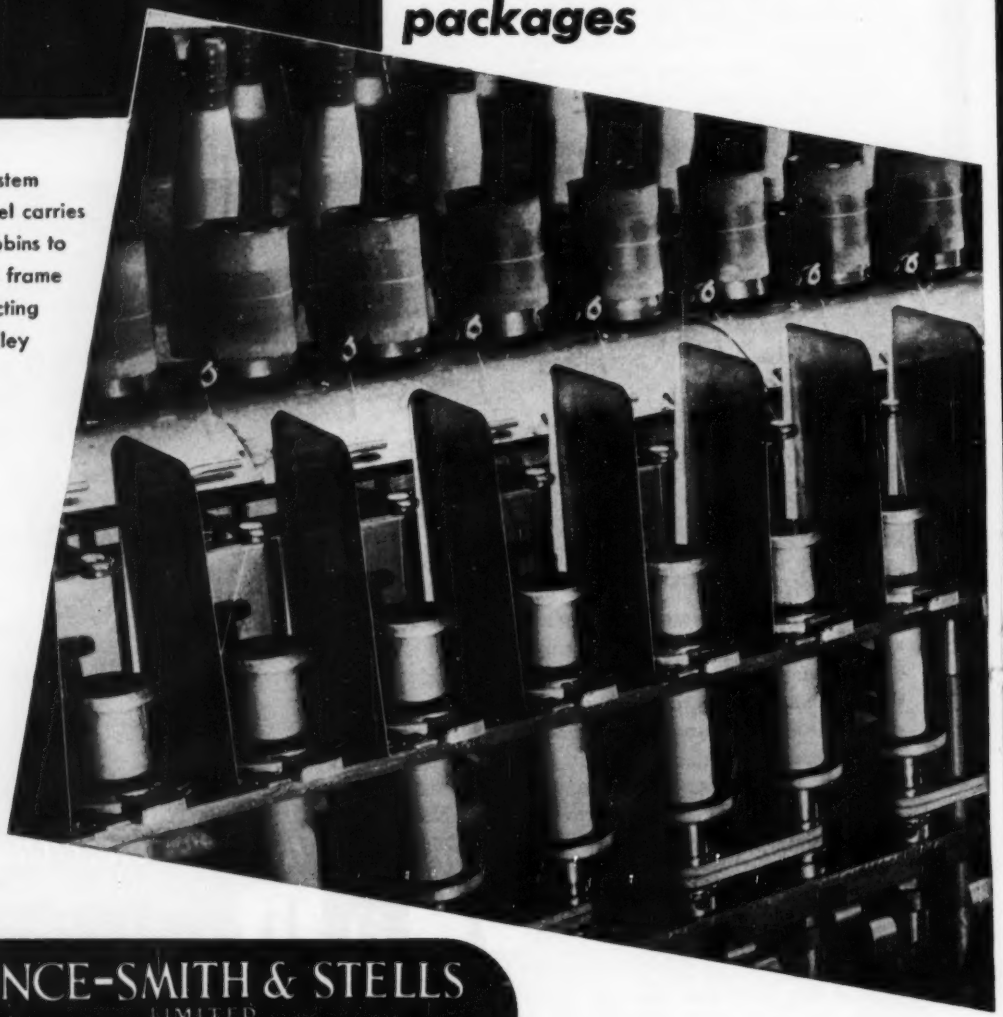


Prince-Smith & Stells improves 2-fold ring twister for fine count worsted yarns on large packages



A conveyor system above the creel carries the empty bobbins to the end of the frame without obstructing the working alley with trucks.

PRINCE-SMITH & STELLS
LIMITED
INCORPORATING TAYLOR WORDSWORTH & CO. LTD.
KEIGHLEY ENGLAND

U.S.A. Agents for French System Machinery: Blake Electric Mfg. Co., 43 Commercial Wharf, Boston 10, Mass.

For more information, write direct or use Reader Service post card.

Fine Counts

IF YOU do two-fold twisting of worsteds, you will find this a very practical machine. It will give you all the time-saving advantages of large packages, together with full twisting control for even fine counts. Increasing the size of the dolly rolls to a 3" diameter gives a more accurate tension control and consequently a better yarn. New type spindles eliminates vibration and increases speeds. They require lubrication at only 2,500 hour intervals thus reducing the hazard of oil in the yarn area. Ball bearing tension pulley assemblies save power and tape wear. An adjustable change speed device permits quick alteration of spindle speeds. Combination creel allows you to run from either bobbins or large cones interchangeably. A simplified, rail lifter motion (each side separate) affords accurate, easy alterations for fine or coarse counts. The entire machine is designed for years and years of low maintenance service. For further information please contact Atkinson, Haserick & Co.

ABSORBS VIBRATION

The new Hoffman roller bearing spindle insert has a spring and sleeve which absorbs vibration between the rail and the bolster. The free running spindle uses less power and reduces tape slippage. The knee brake mechanism lifts the complete spindle unit from its normal position causing the top flange of the whorle to make contact with a stationary brake shoe.

WE ARE INDEBTED TO THE CLEVELAND WORSTED MILLS CO. FOR THE PHOTOS

NOTICE

TO OWNERS OF

ATKINSON, HASERICK & CO.

MACHINERY

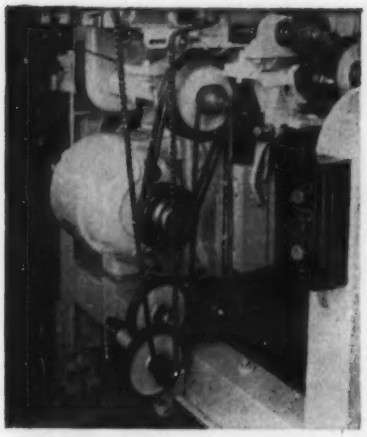
You can secure revised recommendations for aprons, bobbins, card clothing, fallers, rings, screws, etc. for all machinery you have purchased from Atkinson, Haserick & Co. May we suggest that Purchasing Agents review specifications of their mill supplies with one of our engineers. These engineers are continually working with your type of machinery. Their recommendations for even slight changes in parts or usage can often produce gratifying results.

Atkinson, Haserick & Co.

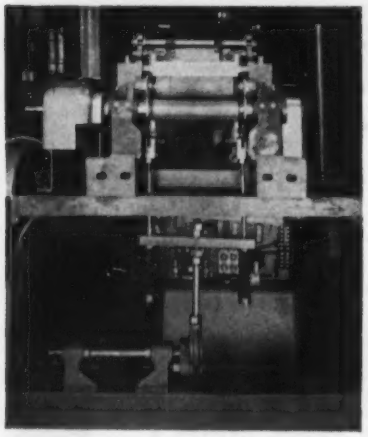
a.h.

Textile Machinery Agents and Engineers Since 1823

211 CONGRESS STREET
BOSTON 6, MASS.
1639 W. MOREHEAD STREET
CHARLOTTE 2, N. C.

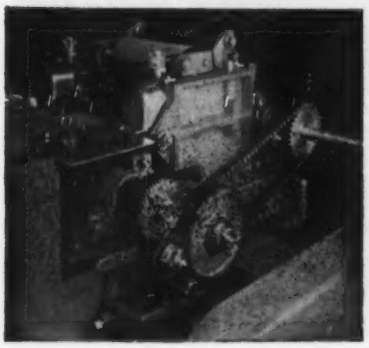


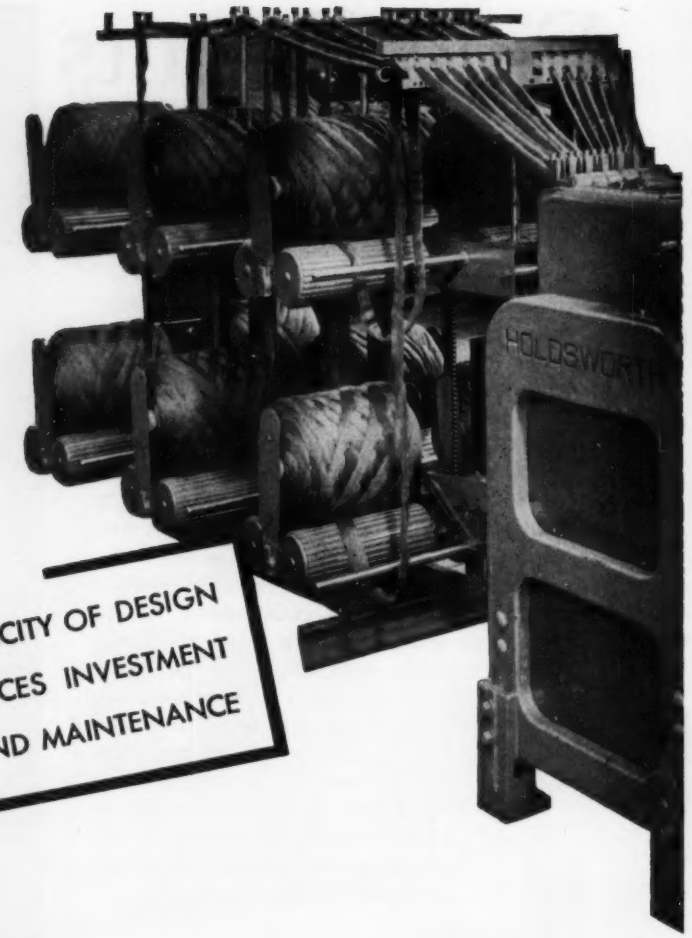
INDIVIDUAL MOTOR DRIVE View of the back of the frame shows how compact and accessible is the variable speed drive.



DRAWING OFF ROLLS & ROLLER WEIGHTING The simple, quick relieving, roller weighting is shown together with the front rolls and electrical control panel.

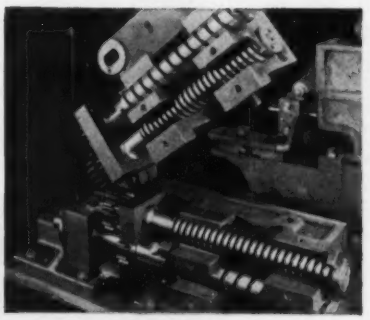
CHANGE GEARING These are the only change gears in the entire machine and are easily accessible for quick changing. Note the sturdy construction.



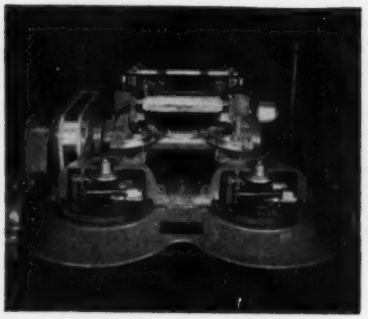


SIMPLICITY OF DESIGN
REDUCES INVESTMENT
AND MAINTENANCE

Holdsworth Gill



HEAD OPENED, STILL IN TIME Head may be opened for cleaning or inspection without disturbing the timing. The sturdy screw blocks are shown with Holdsworth one piece screws and patented Holdsworth cams. These screws will transport the famous Holdsworth fallers that have solid steel middles drilled for replaceable pins.



IMPROVED COILER HEADS The coiler head is opened here to show the simplicity of the new, improved mechanism. Sliver guides and two of the four push button controls can be seen in this view. The Holdsworth Gill Reducer is also made with a balling head if desired. (Ball creel is shown in main illustration: can creel is available.)

Reducer

FOR WOOL, SYNTHETICS & BLENDS

There are fewer working parts in a Holdsworth Gill Reducer — Fewer parts to maintain. Fewer parts to wear. Fewer parts to purchase. Yet the ruggedness and good machining of these parts allows the taking of two ends through one head. If you will consider these advantages in relation to your mill, perhaps you will want to see these Reducers in action. Wire us collect to locate the installation nearest to you.

HOLDSWORTH
GILL SCREW CO., INC.
PLANT: 55 SABIN STREET
PAWTUCKET, R. I.

48 Hour Service

REPAIRING GILL SCREWS

Send Holdsworth Screws to be repaired direct to the plant, 55 Sabin St., Pawtucket, R. I. Within 48 hours we will send you a screw expertly repaired and of true pitch. We also repair all types of fallers.

Atkinson, Haserick & Co.

a h.

Textile Machinery Agents and Engineers Since 1823

211 CONGRESS STREET
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If you're using mechanically operated brakes and clutches

YOUR TEXTILE MACHINES MAY BE OBSOLETE!

● In fact, no matter what system of braking or clutching you're now using, Warner *electric motion control* can make operation of your machines easier and more profitable.

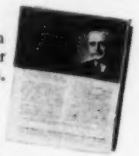
If speed of operation is important, Warner Electric Brakes and Clutches can give you speed measured in *milliseconds!*

If accurate timing, indexing, or synchronizing of machine motions is a factor in the manufacture of finer quality finished or semi-finished cloth, Warner units can give you precisely controlled speed and torque with only *one* simple adjustment.

If remote or automatic control can improve efficiency, morale, and productivity of your personnel, electric brakes and clutches can be wired into your machine circuits easily, at minimum cost—expanding the use of limit switches, pushbuttons, relays, and other control devices.

So, whether you're a mill operator, and you want to modernize and increase the productivity of existing machinery—or a machinery manufacturer, and you want to improve design and saleability of your product . . . your Warner representative will gladly show you profitable applications of these new, remarkably fast, utterly simple, easily controlled electric brakes and clutches to *your* textile operations.

MORE FACTS about equipment modernization in the textile industry. Specific applications of Warner Electric Brakes and Clutches to textile operations. Write for your free copy. Beloit, Wisc.



Warner Electric Brakes and Clutches improve a variety of textile operations!

Loom—fast clutching accelerates shuttle, in a few inches, enough to travel 4 feet in a fraction of a second. Stops on late signal in 1/54 second.

Automatic Dyeing—quick, repetitive stops and starts save time. No coasting . . . no waiting before valve is opened or closed.

Card Machine—starts high inertia load of card cylinder quickly, easily.

Warper—stop motion signal automatically brakes yarn warper traveling at 750 yards-per-minute within 1½ yards. Synchronized braking of several reels eliminates skidding.

Dresser Reel—stops 1000 to 3000 lb. reel, rotating at 50 r.p.m., in less than ½ revolution.

Brushing Machine—perfectly synchronized braking of eight brush rolls eliminates cloth abrasion.

Roving Frame—potentiometer control of Warner Electric Clutch permits variable time base acceleration characteristic at control of the machine operator.

Narrow Fabric Loom — instant, electric braking eliminates shade marks produced by coasting stop.

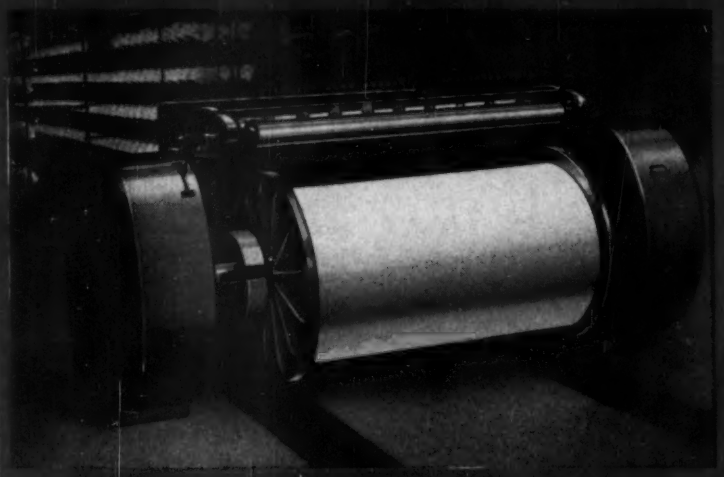
Tricot Knitting—over-excitation circuit produces ultra-high-speed braking and clutching . . . eliminates stop marks in fine quality cloth.

Semi-Decater—perfectly synchronized braking of two drums eliminates slack—no more torn or broken leaders.

WARNER

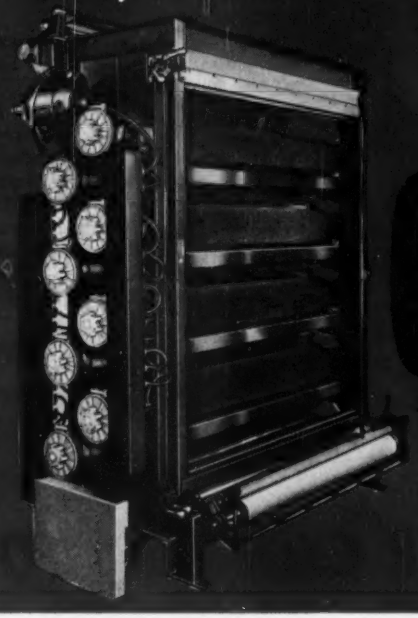
ELECTRIC BRAKES & CLUTCHES

FOR INDUSTRIAL APPLICATIONS

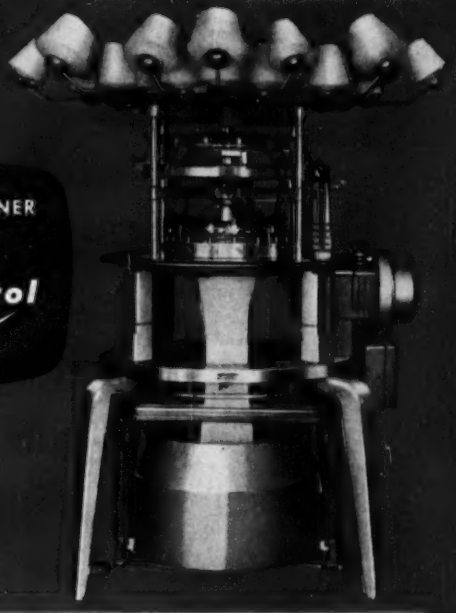


Warner Electric Brake automatically stops Cocker High-Speed Warper in 1½ yards ...prevents "lost ends."

Warner Electric Clutch-Brake simplifies operation ... increases productivity of Brinton Rib Body machine.

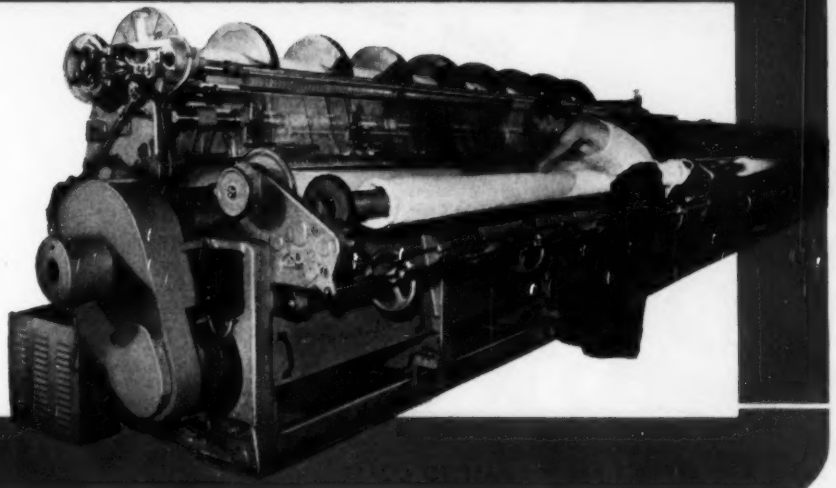


EQUIPPED WITH WARNER
electric
motion control



Warner Electric Brakes stop rolls in perfect synchronization...eliminate cloth abrasion on Hermas Brush machine.

Ultra-high-speed stops and starts of Warner Electric Clutch-Brake ... Robert Reiner Tricot knits finer cloth.



LIZE THE SQUEEZE with Miller AIR CYLINDERS

Two Miller Air Cylinders (one at each end of the pressure roll) provide the steady, even "squeeze" so essential for the pressure rolls of Textile machinery.

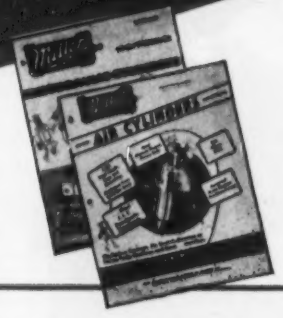
The variation in friction co-efficiency in these cylinders is practically negligible. Thus, whether the pressure is to be constantly held or reapplied as required, the "twin" cylinders can be depended upon to react simultaneously and in perfect unison to the slightest adjustment. Also, any desired pressure on the rolls can be duplicated and maintained at will.

These top performance qualities are "built-in" features of Miller Standard Air Cylinders proven 98% plus efficient (at 80 psi). The Miller Non-Adjustable Seals assure *consistency* of performance throughout cylinder life. This consistency is further guaranteed over exceedingly long periods of time by such standard Miller features as solid steel heads and caps, hard chrome plated piston rods, dirt wiper seals and non-corrosive cylinder barrels.

Miller

AIR CYLINDERS FOR

- **Bullet Padders**
- **Washers**
- **Steamers**
- **Rope Squeezers**
- **Bleaching Equipment**
- **Dyeing Equipment**
- **Other Textile Machinery**



WRITE FOR CYLINDER BULLETINS A-105 and H-104

Complete Miller cylinder line includes: air cylinders, 1½" to 20" bores, 200 PSI operation; low pressure hydraulic cylinders, 1½" to 6" bores for 500 PSI operation, 8" to 14" bores for 250 PSI; high pressure hydraulic cylinders, 1½" to 12" bores, 2000-3000 PSI operation. All mounting styles available.

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CLEVELAND • YOUNGSTOWN • DAYTON • PITTSBURGH • PHILADELPHIA • BOSTON • HARTFORD • NEW YORK CITY • BUFFALO • ST. PAUL • GRAND RAPIDS • DETROIT • FLINT • FORT WAYNE • SOUTH BEND • INDIANAPOLIS • MILWAUKEE • LOUISVILLE • KANSAS CITY • SEATTLE • LOS ANGELES • SAN FRANCISCO • BALTIMORE • DENVER • ST. LOUIS • MOLINE • CHICAGO • HOUSTON • TORONTO, CANADA and OTHER AREAS

Miller

MILLER MOTOR COMPANY

2002-06 N. Hawthorne Ave., Melrose Park, Ill.

AIR & HYDRAULIC CYLINDERS • BOOSTERS • ACCUMULATORS
COUNTERBALANCE CYLINDERS

He found STATIC fun... but you don't

In 1672, Otto Von Guericke discovered how to chase a feather around the room with his newly invented electrified sulfur globe. Some fun!

But Otto didn't have the problem that you have—of making static-loaded textile fibers behave as required. For you, electrical repulsion proves only a headache, no fun.

Nopco didn't discover static electricity, to be sure. But we have developed new and successful ways to control static in textile processing... have pioneered the development of anti-static chemicals for natural and synthetic fibers alike.

You'll find the use of Nopcostat* fiber treatments invaluable. For Nopcostats are remarkable static reducers.

More. Each Nopcostat lubricant is designed to give you "balanced" performance and assure not only effective static control, but...

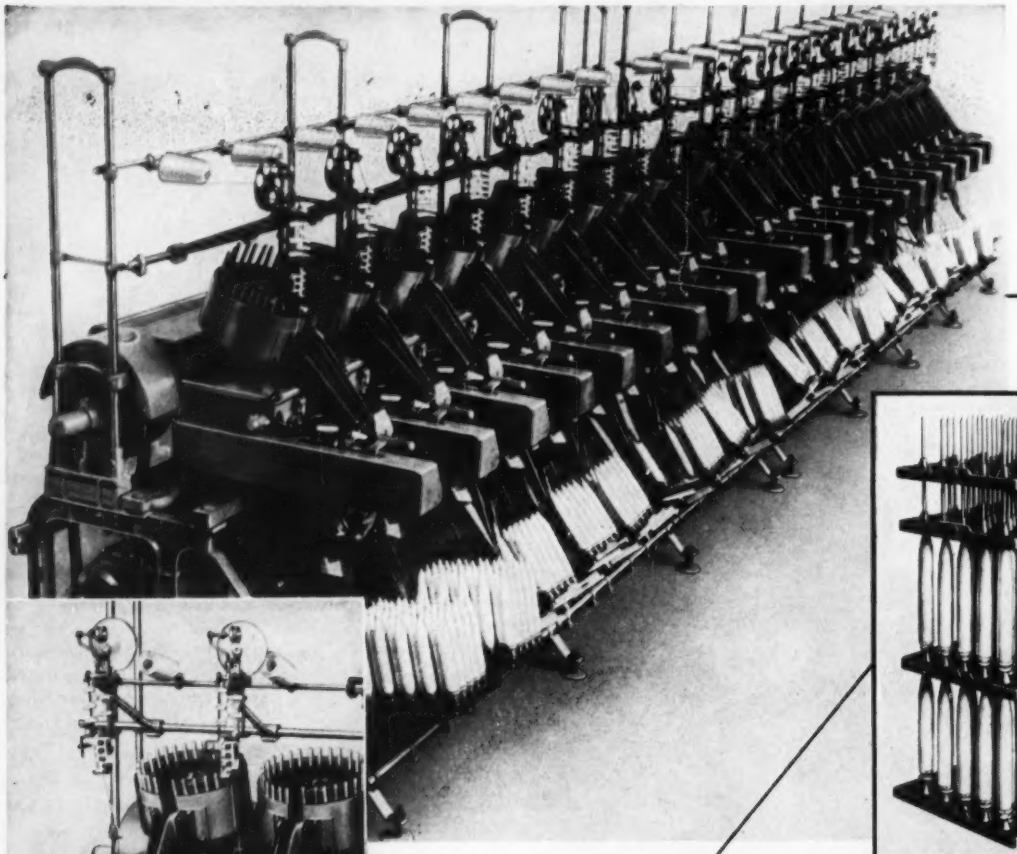
Proper coefficient of friction (fiber-to-metal)
Fiber-to-fiber cohesion
Freedom from gumminess
Easy and thorough scouring

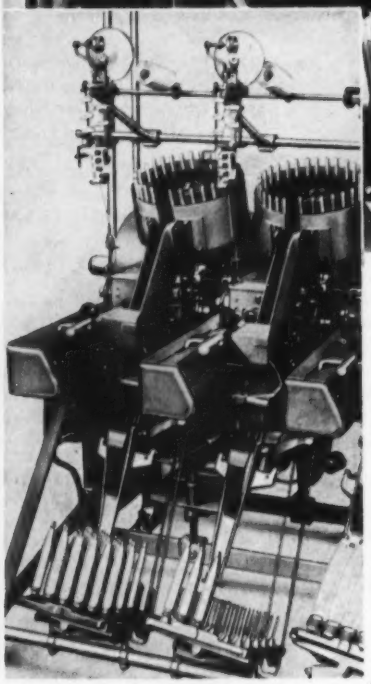
Nopco representatives are technically trained—will gladly work closely with you in the selection and application of the Nopcostat suited to your needs. Write for further information now.

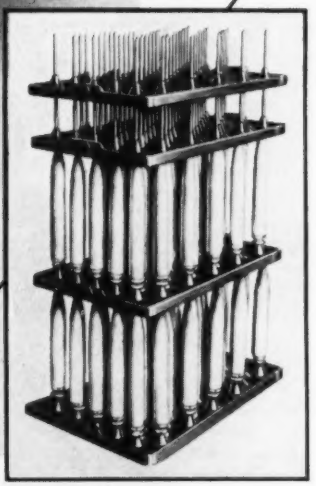
*Reg. U.S. Pat. Off.

NOPCO
CHEMICAL COMPANY Harrison, N. J.

Branches: Boston • Chicago • Cedartown, Ga. • Richmond, Calif.







The New AUTOMATIC PIN TRAY LOADER

for use with

SCHWEITER AUTOMATIC BOBBIN WINDERS

(TYPES MS, MSK)

The new Schweiter Pin Tray Loader is a fully automatic device for placing bobbins on pin trays after they come from your Schweiter Winders.

Each winding unit has an individual pin tray, 8¼" x 13¾", holding 50 bobbins. The loader is operated by the winding unit itself so that all the pins are filled in rotation with *fully wound* bobbins. When the pin tray is full, the winding unit stops automatically. The trays are specially designed to fit one on top of the other (see above, at right) for easy transport to the looms. During the entire process, the yarn is not touched by the operator, eliminating the possibility of soiled yarn and broken filaments.

You can reduce waste and cut labor costs by installing Schweiter Winders equipped with this efficient automatic pin tray loader. The loader can also be easily adapted to your present Schweiter winders.

Write today for full information.

SCHWEITER LTD.

HORGEN (Zurich) SWITZERLAND

Sole Agents for the United States and Canada

WHITIN MACHINE WORKS • WHITINSVILLE, MASS.

SERVICE PIN... for you, too

Chances are you've seen this pin. It represents 15 years of service with Socony-Vacuum. Six out of 10 of our industrial engineers and salesmen wear it. Four out of 10 have served over 20 years. In fact, the average length of service of *all* Socony-Vacuum lubrication and process products representatives is almost 17 years! All this petroleum engineering experience, the world's greatest, is yours when you call on Socony-Vacuum. Why accept less for *your* plant?

Socony-Vacuum
Correct Lubrication

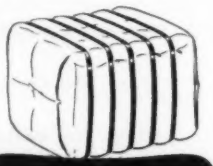
SOCONY-VACUUM OIL COMPANY, INC., and Affiliates:
MAGNOLIA PETROLEUM COMPANY, GENERAL PETROLEUM CORPORATION

Acme Steel Strapping Insures S.A. *(Safe Arrival)*

TIGHT SQUEEZE ON A LADY'S DRESS. Every week Paramount Printing & Finishing Co. ships out millions of yards of dress material. It's all compressed and then held under tension by Acme Steel strapping to save on shipping space. It gets where it's going quickly, safely and inexpensively.

Whether you ship your fabric, yarn or knit goods in bales, boxes or cartons—it travels *safer* when Acme Steel strapping protects it.

You save on packing and shippings costs, too. We have many striking examples of this. Write for them to Acme Steel Products Division, Dept. TW 23.



ACME STEEL

ACME STEEL COMPANY
2820 Archer Avenue, Chicago 8, Illinois

For more information, write direct or use Reader Service post card.

"Is new American cost-cutting weapon... Pure Oil Industrial Lubricants"

Pure Oil specializes in top-quality industrial oils and greases designed to do several *different* jobs—instead of one specific job.

And to do each job *equally well.*

Regardless of the type of machinery you have in your plant, our industrial engineers can nearly always help you to reduce your lubricants inventory . . . simplify your lubricating procedure . . . minimize waste and error.

Mail coupon today for free "Simplify and Save" booklet giving full details on how to start a labor-saving, money-saving, lubrication program in your plant.

Hundreds of machines . . . only one grease!

A large midwestern metal-working plant produces chrome-plated trim (hub caps, grills, etc.) for the automotive industry. All types of metal-working equipment—400-ton presses, shears, drills, lathes, roller-levelers and grinders—are used as well as huge chrome-plating machines. Yet *only one grease*—Pure Oil's POCO HT GREASE B—and one dispenser is used for *all* applications! And in 3 years there has been no down time due to lubrication failures.

THE PURE OIL COMPANY, U.S.A.

PURE

Be sure with Pure

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Please send me your free "Simplify and Save" booklet.

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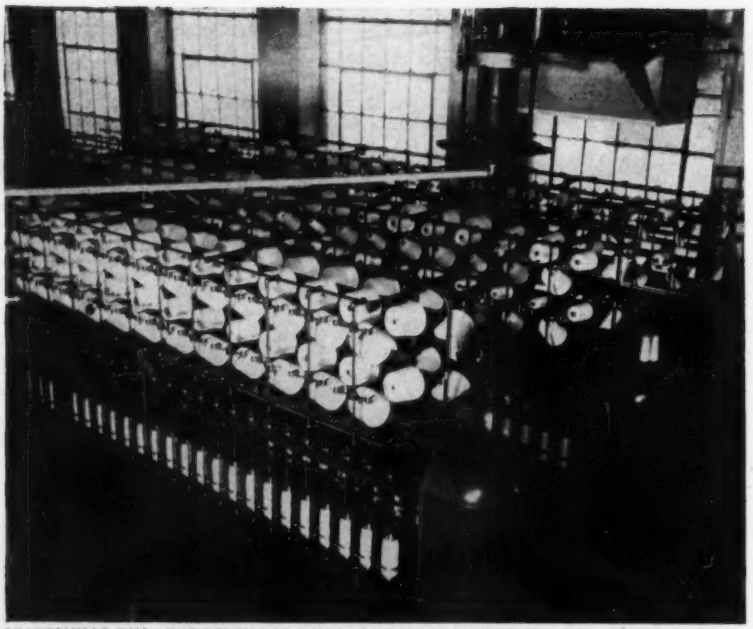
***Sales offices located in more than 500 cities, including:** Atlanta • Birmingham • Charleston • Charlotte • Chattanooga • Chicago Columbus • Indianapolis • Jacksonville • Madison • Memphis • Miami • Milwaukee • Minneapolis • Pensacola • Pittsburgh • Richmond

United Merchants & Manufacturers, Inc. reports great flexibility in use of MODEL 10 RING TWISTER



STATESVILLE DIV., THE SEMINOLE MILLS, A UNIT OF UNITED MERCHANTS & MANUFACTURERS, in Statesville, North Carolina, uses Model 10 Ring Twisters. Plied yarns from the large twister packages are used as direct warping and winding supply.

"The only ring twister that gives us flexibility for all our yarns."

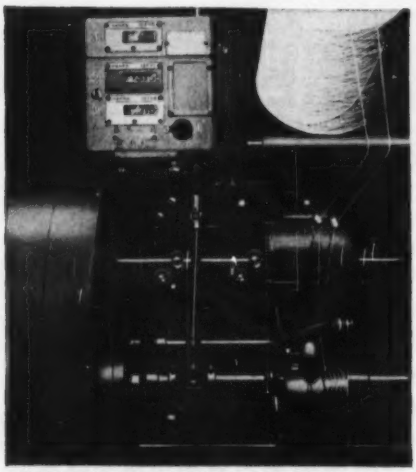
STATES THIS TEXTILE MANUFACTURER

United Merchants & Manufacturers, Inc. believes in thorough testing of basic equipment used throughout their mills.

That's why when United Merchants & Manufacturers installed our Model 10 Ring Twisters in their Statesville Div., The Seminole Mills, a number of test runs were made. Seminole works only with synthetic yarns but the Twister was tested on other yarns as well—glass, nylon, cotton and combination yarns. In this way, the extent of the use of the Twister in their Mills was determined.

"Test runs showed," says United Merchants & Manufacturers, "that the Universal Model 10 Ring Twister is the only ring twister that gives us the flexibility needed for all of our yarns."

Endorsements such as this are typical of the comments made by users of Universal twisting and winding equipment—and evidence why Universal is the world's largest manufacturer of this type of textile machinery. More packages of every shape, size and fiber are twisted and wound on Universal machines than on any other make.



AUTOMATIC STOP MOTION FOR EACH END IN THE PLY is an exclusive feature of the Model 10 Ring Twister.

EXCLUSIVE AUTOMATIC STOP MOTION

Only the Model 10 Ring Twister has automatic stop motion for each end in the ply. Located just above the feed roll it stops the spindle and feed roll instantly whenever a break or runout occurs.

As a result, drop ply cannot get into the packages — roller laps are eliminated — and ends are tied in the singles before twist is inserted, resulting in smaller, less troublesome knots. If you are not already using Model 10 Ring Twisters, why not plan on installing them now?

LESOVA®

UNIVERSAL WINDING COMPANY

P. O. Box 1605, Providence 1, R. I.

Boston, Philadelphia, Utica, Charlotte, Atlanta, Chicago, Los Angeles; Montreal, Hamilton, Canada; Manchester, England; Paris, France; Basle, Switzerland

Agents in every principal textile center throughout the world

Winding and Twisting Machinery for Natural and Synthetic Yarns

12th Century Islamic Egyptian Fabric.
Museum of Art, R. I. School of Design.

. . . then as now

YARN DYED FABRICS
were Supreme

About the time Saladin fought Richard Lion Heart's crusaders outside Jerusalem, this yarn dyed fabric was woven in Moslem Egypt. With its conventionalized Arabic lettering still vivid, it may be seen in the museum of Rhode Island School of Design.

Color was used to enhance the appeal of fabrics, before history began. And highest favor was accorded fabrics whose patterns were created from colored yarns.

Now, as always, the best fabrics are yarn dyed. For exceptional quality in your colored yarns, and for expert advice in their use, rely on Franklin Process — yarn merchants and the largest package yarn dyers in the world.

YARN MERCHANTS AND LARGEST PACKAGE DYERS IN THE WORLD

Franklin Process

New York Representative — 40 Worth Street
Providence
Philadelphia
Greenville
Chattanooga

Autofill winding filament rayon from magazine cone supply

A bad beginning never makes for a good ending. If your filling bobbins are full of hollows and ridges and if your yarn has been frayed by builder wheels on the winder, you simply can't produce a first class fabric and your weaving costs are multiplied.

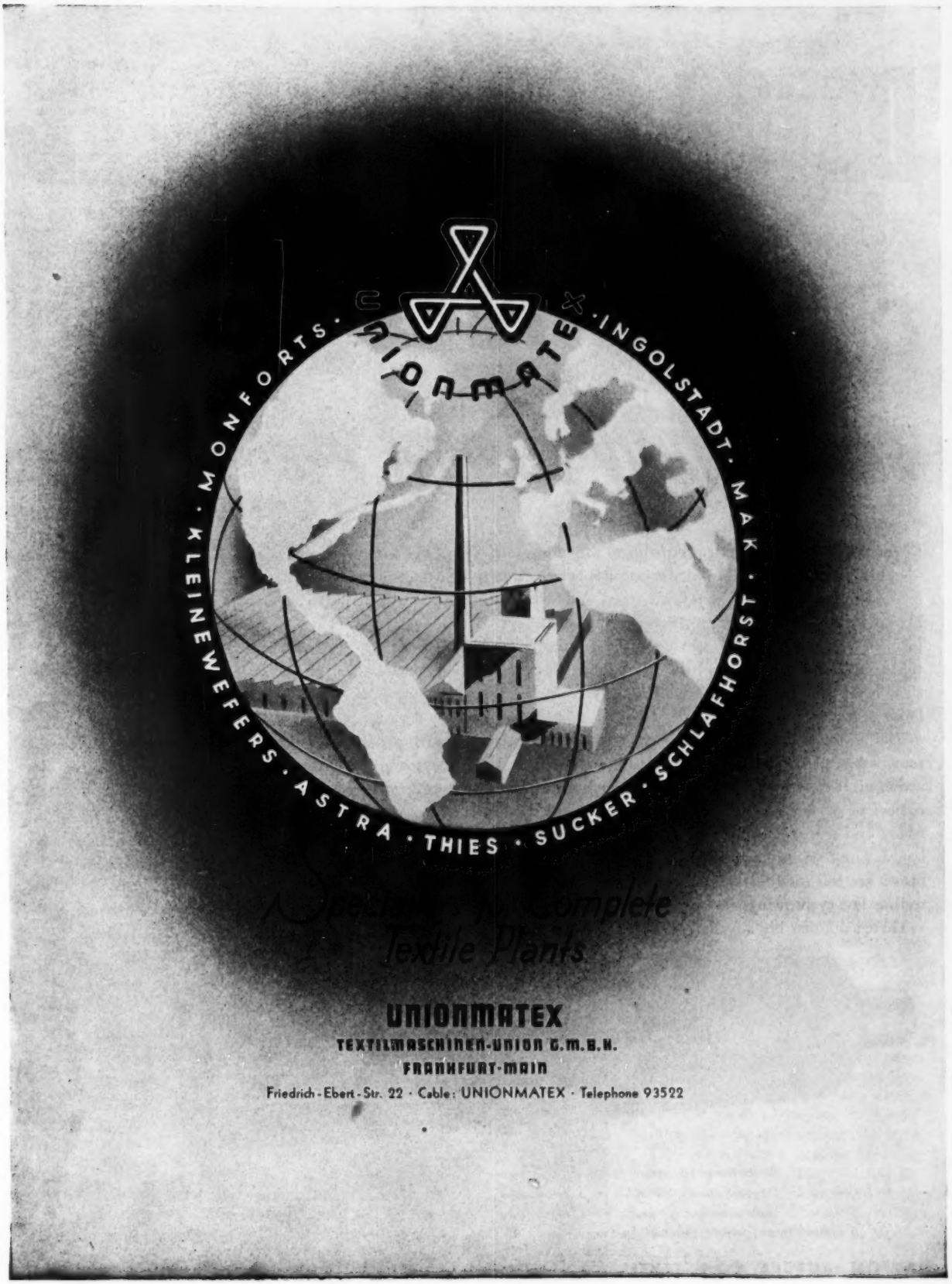
You can greatly improve the quality of your fabrics and reduce your cost of weaving by using Foster-Muschamp Autofill Winders (fully automatic). This is because the Autofill does NOT use a builder wheel. It determines the lay of the yarn on the bobbin by means of gears rather than friction wheels and produces a precision wound product which is entirely free of hollows, ridges and filaments broken due to builder wheel friction.

Result—a much better fabric at much less cost.

You want better weaving at less cost on all your fabrics, of course, but it is particularly important if you are weaving fine denier yarns, such as 30 denier nylon. In such cases, because your materials cost is high, losses due to damage become astronomical.

Get all the facts about the Foster-Muschamp Autofill. Send for Bulletin M-1 today.

FOSTER MACHINE COMPANY
Westfield, Mass., U.S.A.
Southern Office—Johnston Bldg., Charlotte, N. C.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DAYCO COTS with amazing new discovery, IBROCOL, *successfully combat eyebrowing!*

Thanks to a new synthetic rubber blend containing the amazing ingredient, Ibrocol, Dayton Rubber research has been able to develop an entirely new and different Dayco Cot—EW-465—that successfully combats eyebrowing. Actual mill tests run on many frames prove this, and also that it drafts better yarn, requires fewer cleanings of the clearer boards, and runs longer between buffings than any other cot.

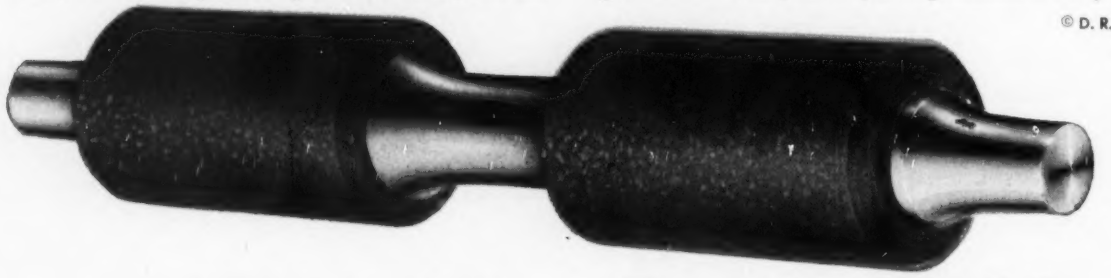
The addition of Ibrocol is the chief reason for this remarkable performance. Its chemical and mechanical action gives the cot a surface that maintains just the right coefficient of friction to remove only the short staple fibers and transfer them well back under the clearer board. Long staple fibers that could build up into eyebrows are left in the yarn. Hence there is less waste as well as less eyebrowing.

There's another big advantage too. The Ibrocol in the new Dayco Cot retards slicking and glazing. Thus the surface retains its coefficient of friction longer than any other synthetic cot. This means fewer buffings, greater savings.

In addition to its special features, the new EW-465 Dayco Cot also gives you all the other famous Dayco Cot advantages. They're unaffected by moisture or changes in temperature. Neither do they groove, pit, or develop flat spots. As a result of these many features, Daycos give you fewer ends down, less lap ups, less eyebrowing, better drafting on all types of frames using either natural or synthetic fibers.

Whether you want to overcome eyebrowing or any other cot problem, you'll find that Dayco Cots are the right answer to help you secure the highest quality production at the lowest possible cost. For the whole story, get in touch with your Dayco Representative today.

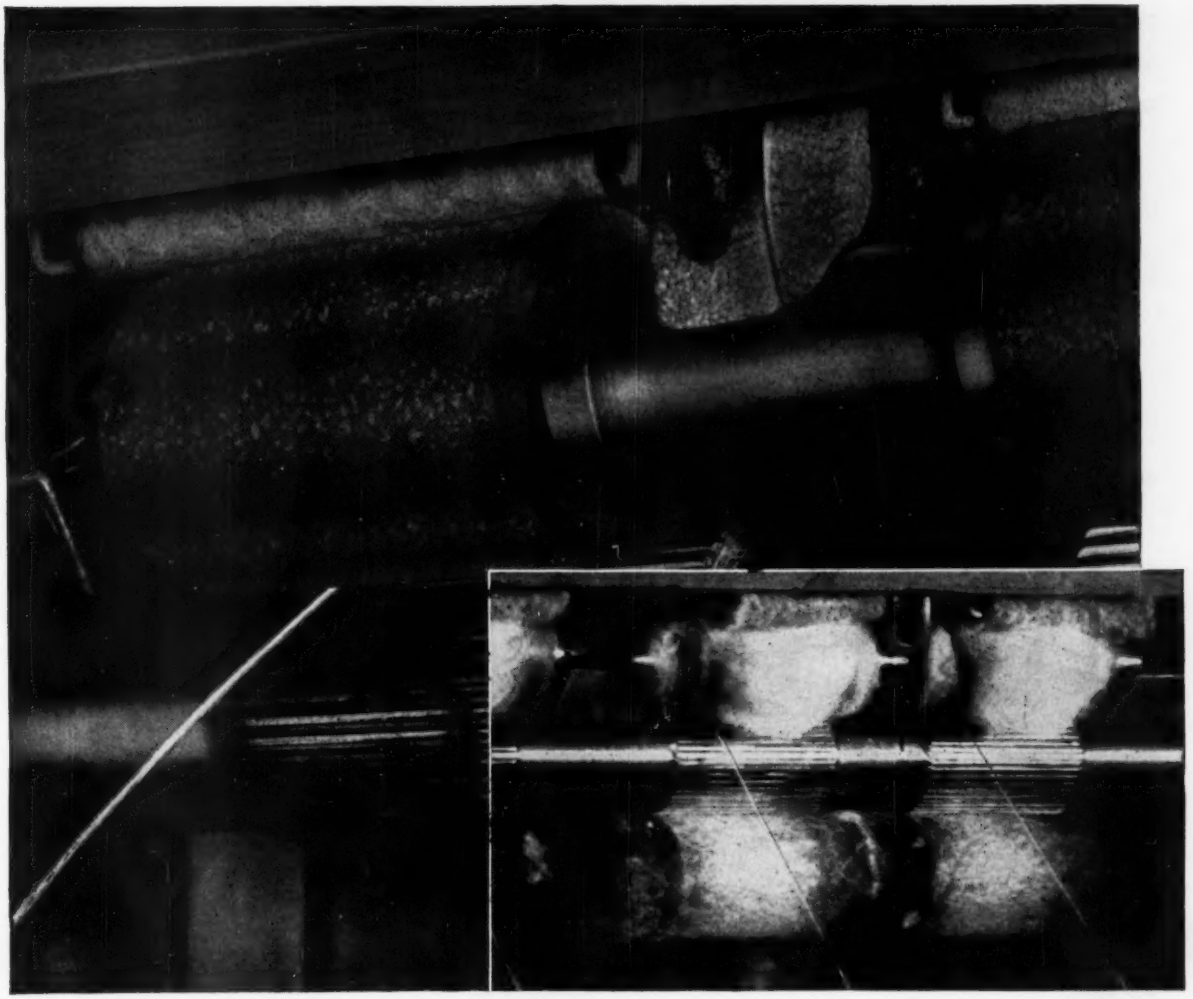
© D. R. 1953

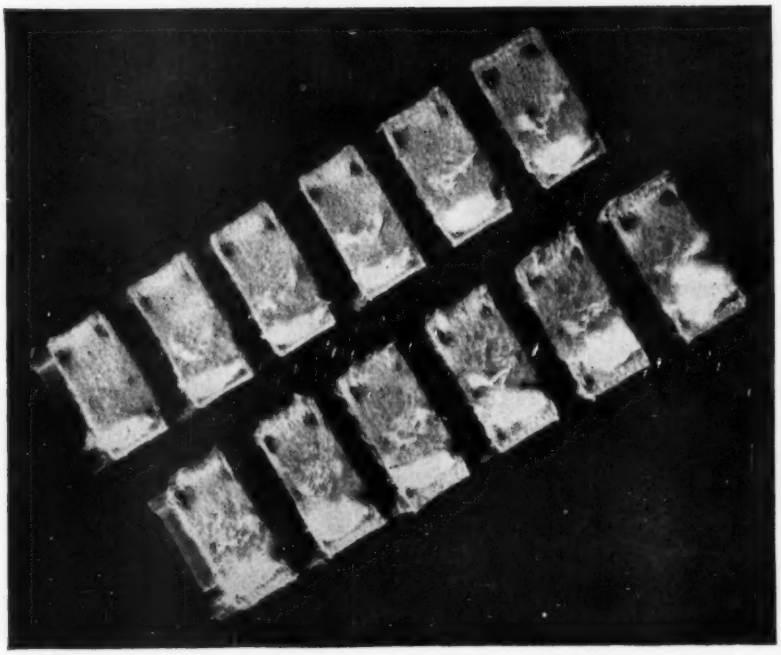


According to actual mill tests, this new Dayco Cot with IBROCOL successfully combats eyebrowing, drafts better yarn, and runs longer between buffings.

Dayton Rubber
Since 1905
Textile Products for Better Spinning and Weaving

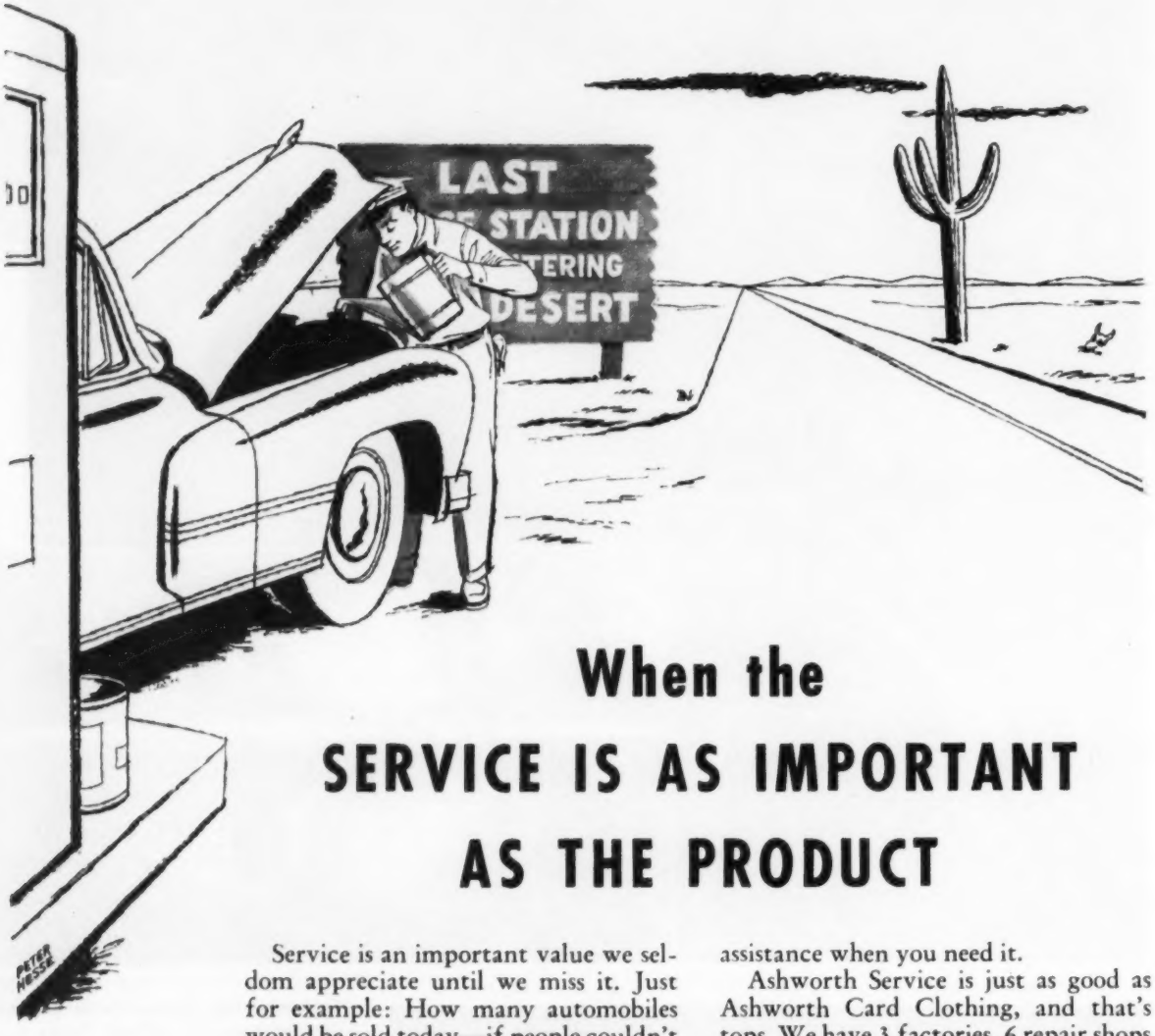
DAYTON RUBBER CO., TEXTILE DIVISION, WOODSIDE BUILDING, GREENVILLE, S. C.





Compare the non-eyebrowing performance of these new EW-465 Dayco Cots shown above in the large illustration, with the condition of another make, shown in the inset. You immediately see why mills who have tried the new Dayco Cots are so enthusiastic. An accurate check in a great many mills over a period up to one year showed that the new Dayco EW-465 Cot did not eyebrow while other cots did.

The clearer board on the top came from a stand of new EW-465 Dayco Cots. These cots were run on the frame exactly the same length of time as the bottom clearer board taken from an adjacent stand of different make cots. Note the difference in the clearer waste. This is because the Dayco's remove only short staple fibres, packing them well back under the clearer board away from possible pickup by the end.



When the SERVICE IS AS IMPORTANT AS THE PRODUCT

Service is an important value we seldom appreciate until we miss it. Just for example: How many automobiles would be sold today—if people couldn't find service stations everywhere, to keep 'em rolling?

As for card clothing, service is as important as the product itself. Quality alone is of little avail—unless the product is quickly and conveniently available, unless you get the best type of clothing for your purpose, unless efficient installation service is near at hand, and unless you can count on technical assistance when you need it.

Ashworth Service is just as good as Ashworth Card Clothing, and that's tops. We have 3 factories, 6 repair shops and 7 distributing points—all strategically located in major textile areas. These assure an adequate supply, convenient repair service and prompt deliveries.

Our staff of practical card men can also give you technical advice, survey your cards and recommend necessary repairs. Write to our nearest plant for further information.

ASHWORTH BROS., INC.

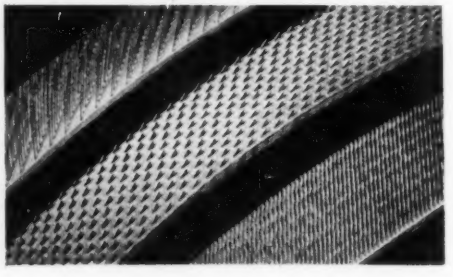
American Card Clothing Co. (Woolen Division)

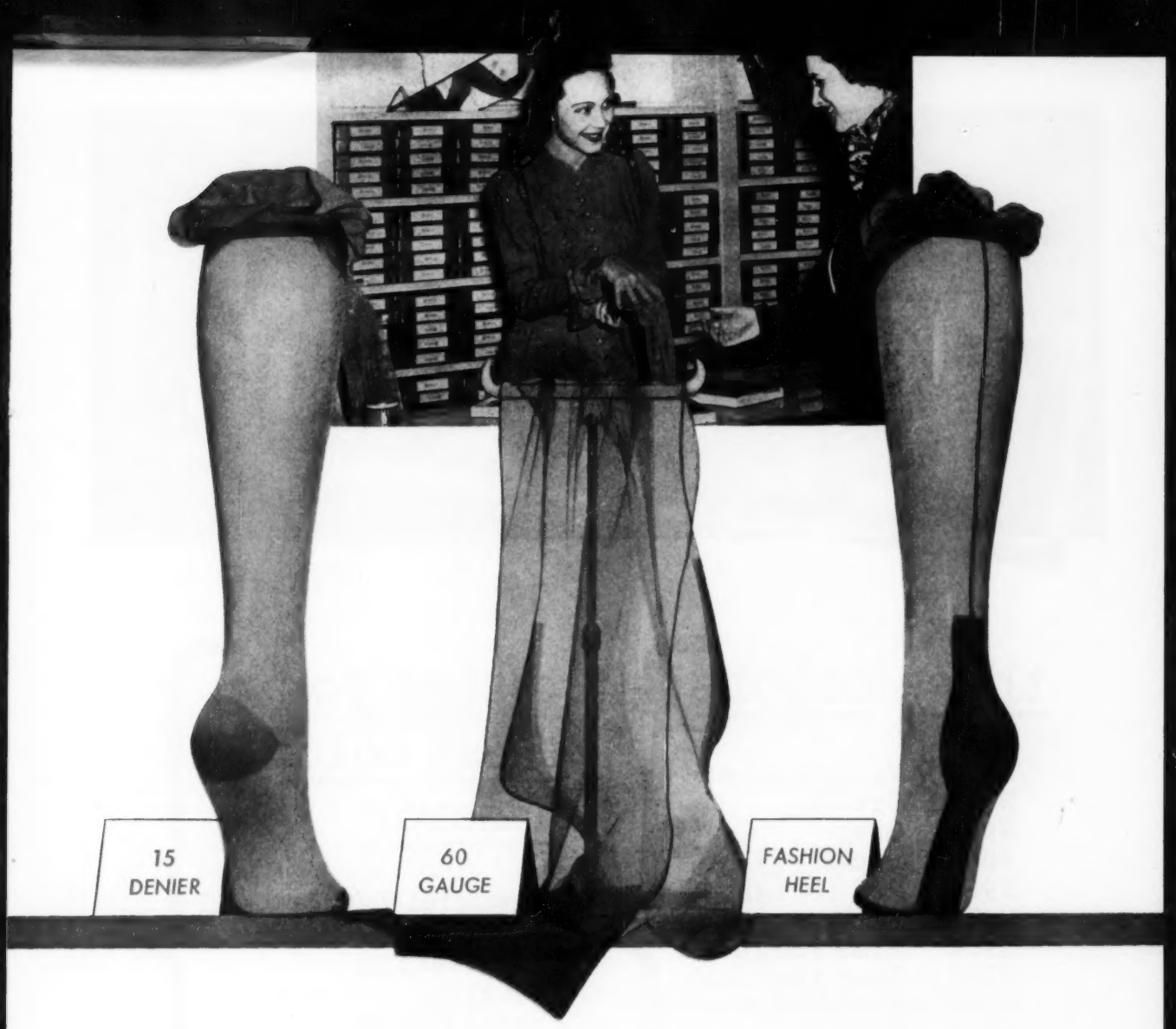
Fall River*†‡ Worcester‡ Philadelphia*†‡ Atlanta†‡
Greenville*†‡ Charlotte†‡ Dallas†‡ (Textile Supply Co.)

* Factory† Repair Shop‡ Distributing Point

Ashworth **CARD CLOTHING**

3 FACTORIES **6** REPAIR SHOPS **7** DISTRIBUTING POINTS





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meets all requirements for fine hosiery knitting

Whatever the gauge, denier or style of hosiery, there is a Torrington
Needle exactly suited to the job for efficient production of top quality merchandise.
Call on Torrington for every needle requirement.

THE TORRINGTON COMPANY
Torrington, Conn., U.S.A.
Established 1866

SPRING BEARD · LATCH · LEADED AND PARTS

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these colors

N937	Yellow Green
N974	Green
N935	Grey
N956	Brown
N988	Red (Bright)
N951	Yellow
N950	Blue (Light)
N957	Blue (Medium)
N383	Blue (Royal)
N944	Navy
N948	Blue Green
N945	Red (Dark)
N987	Pink
C-6	Rose
#16	Black

tested for these color hazards

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For further information about these and other Celaperm* colors, see your Celanese representative or contact any of the following branch offices:

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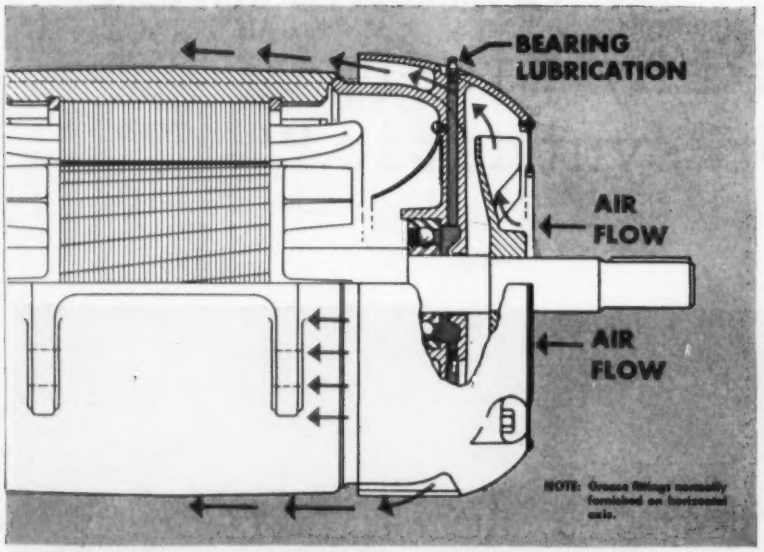
CELANESE® COLOR-PIGMENTED FILAMENT ACETATE YARN

Give these results

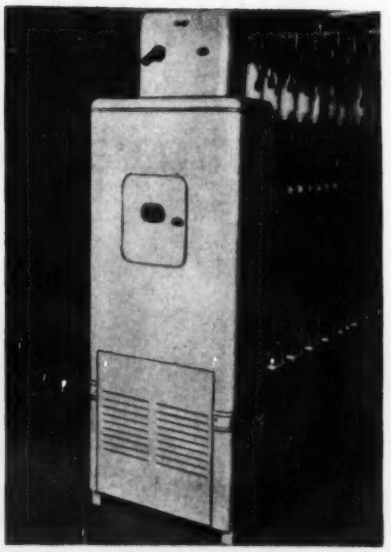
"this range of colors has an all-around fastness unexcelled by conventional dyeing on any fiber, natural or synthetic."

Celanese®
ACETATE, one of the world's great textile fibers

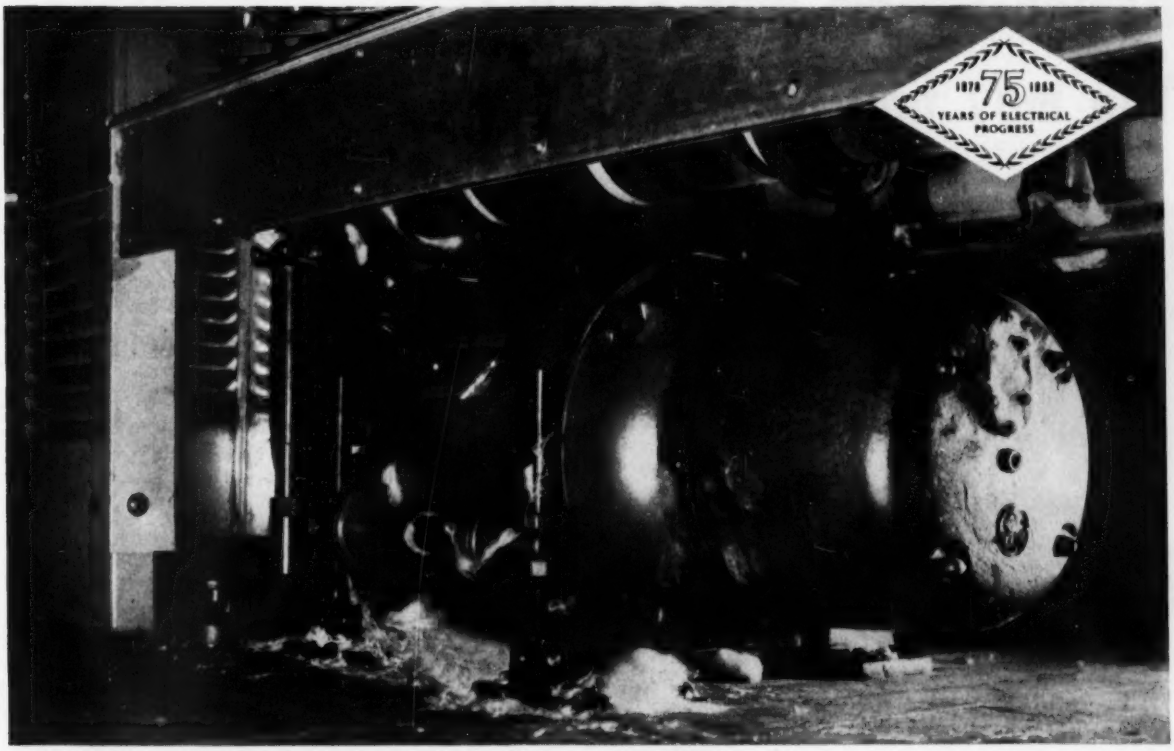
SG-1 Gwaltney spinning frames



MAINTENANCE TIME IS REDUCED because positive lint-expulsion keeps motor clean, large grease reservoirs and convenient pressure-relief fittings make lubrication infrequent and easy—without disassembly.



STREAMLINED MOTOR CONTROL is compact, conveniently-located, designed especially for the SG-1 frame.



AISLE SPACE IS SAVED because compact, totally-enclosed, fan-cooled G-E motor is mounted beneath the SG-1 spinning frame. Non-clogging design of external cooling fan and fan housing allows free passage of lint-laden air.

driven by new-type G-E motors

Two motor designs—fan- or water-cooled—meet all mill needs

WATER-COOLED DESIGN uses large-diameter Saran tubing wound directly around coil ends—assures maximum cooling efficiency.

Saco-Lowell's new SG-1 Gwaltney spinning frame—the latest in modern textile machinery—required equally new motor designs.

First, Saco-Lowell engineers drew up complete drive requirements. Then they worked with the General Electric design and application engineers who developed the two new types of SG-1 spinning frame motors: one, totally-enclosed, fan-cooled, non-clogging; the other, totally-enclosed and water-cooled.

BOTH MOTORS ARE COMPACT, EFFICIENT, DEPENDABLE

1. They minimize cleaning problems. Both motors are protected against entry of lint.
2. They save aisle space. Both are compactly designed to fit under the spinning frame.
3. They promote even spinning room temperatures.
4. They take varying spinning loads in stride.
5. They simplify maintenance. Grease fittings are conveniently located on sides of motor. Relubrication is easy—and infrequent.

Your G-E apparatus sales representative can give you further details. General Electric Co., Schenectady, New York 654-28

Engineered Electrical Systems for Textile Mills

GENERAL ELECTRIC

Having trouble with STATIC?
You may find the answer in AVCOSOL®

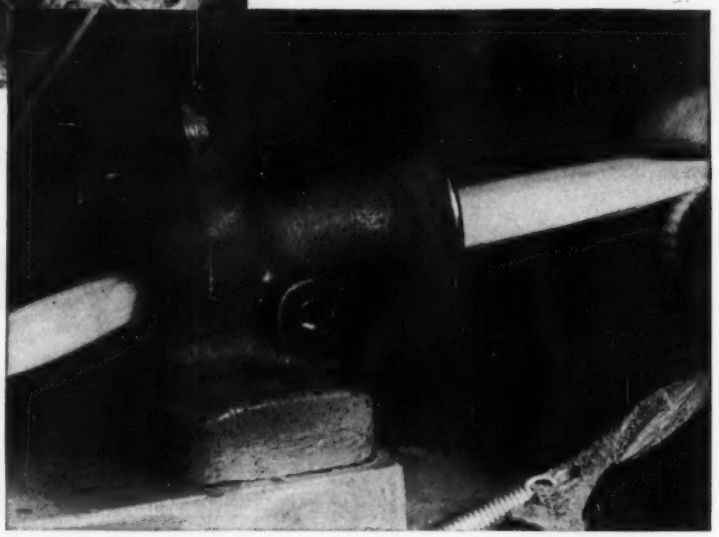
From a series of experiments in static control, conducted at Avisco's Textile Research Department, Marcus Hook, Pa.

DRAFTING UNTREATED SYNTHETIC FIBERS

Excessive static accumulation in this fiber causes excessive fly, "blowing apart" of the web, attraction of fibers to metal parts of the machine.

AFTER TREATMENT WITH AVCOSOL

the same fiber goes through the same machine with practically no fly . . . no lapping. Machine down-time for cleaning is greatly reduced . . . uniformity of subsequent processing is improved.



For the dual purposes of static control and fiber lubrication, Avcosols offer distinct advantages. They are exceptionally effective; can be used in much smaller concentrations than ever before possible. And they're stable . . . will not turn rancid or discolor during shelf storage.

The varied types of Avcosols provide a choice of treating agents for acrylic, nylon, polyester, regenerated and natural fibers. Write today for full information on these and other chemical products for textile processing—and for expert technical assistance in applying them in your mill.

Avcosols were developed in conjunction with and are manufactured by Atlas Powder Company, Wilmington, Delaware

Avisco

AMERICAN VISCOSE CORPORATION

HERE'S PROOF...

that LINK-BELT's Fluid Drive with constant CUSHION ACTION cuts machinery wear and tear

Cutaway shows simple, rugged construction of Link-Belt Fluid Drive.

Now you can use smaller motors and power transmission equipment on your toughest drive problems. What's more, both motors and driven machines will last longer with Link-Belt Fluid Drives.

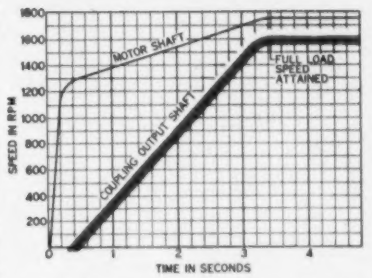
That's because constant CUSHION ACTION provides shock and overload protection . . . and at the same time eliminates high starting torque requirements and high starting currents.

Look at the three sets of curves shown here. See for yourself how constant CUSHION ACTION is the money-saving answer for loads of the high inertia, repetitive shock or high starting torque type.

For complete information, write for Book 2485. It shows how you can put five types of Link-Belt Fluid Drives to work in your plant: Electrofluid Drive, Electrofluid Gearmotor, Fluid Drive, Fluid Gear Drive and Fluid Coupling Drive. 12,853

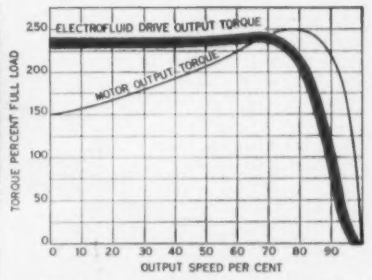
LINK-BELT
FLUID DRIVES

Smooth acceleration - -



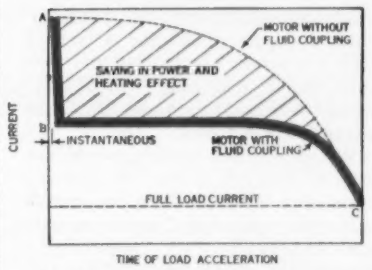
Typical motor and coupling acceleration curves for a high-inertia load show how CUSHION ACTION smoothly and gradually accelerates the load, saving wear and tear on vital equipment.

No overpowering - -



Compare the output torque of a motor with and without the fluid coupling. Because motor accelerates free of load, it reaches maximum pull-out torque that might otherwise require a special type of oversize motor.

Low starting current - -



As these current consumption curves show, with the fluid coupling, motor starting current drops instantaneously to less than half the starting current required by a motor without fluid coupling. Difference represents power savings, reduced heating.

LINK-BELT COMPANY: Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Springs (South Africa). Offices, Factory Branch Stores and Distributors in Principal Cities.

'Round the World 1113 times for $1.00

Calculations based on performance records of Victor 4/0 F1.1 X3D Travelers show that one dollar's worth ran about 27,840,000 miles — 1113 times the distance around the equator.

When you see performance like that, it's easy to think that traveler costs are too small to be worth bothering about. But such records are achieved only when you choose the right traveler for the job, and get the best that money can buy.

Selecting travelers carelessly, without proper regard for quality, will quickly cut down the "mileage". Also, excessive ends down, plus frequent traveler changes, can boost your traveler-pound cost in yarn production far out of line.

When you choose Victor Travelers, a Victor Service Engineer will help you make sure to get the traveler best suited to your individual spinning or twisting. You also get extra long traveler-life, because Victor Travelers take top honors in any test for quality and uniformity.

Remember, traveler costs per pound of yarn depend, *never* on price, *always* on performance. Plan now to talk to a Victor man, whether you are running conventional fibers, synthetics, or blends. Write, wire or phone the nearest Victor office . . . for prompt service.

•

VICTOR Ring Travelers

VICTOR RING TRAVELER COMPANY

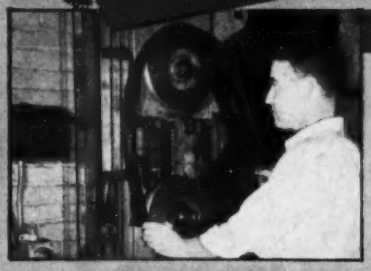
PROVIDENCE, R. I. . . . . 20 Mathewson St. . . . . Tel. Dexter 1-0737

GASTONIA, N. C. . . . . 358-364 West Main Ave. . . . . Tel. 5-0891

For more information, write direct or use Reader Service post card.

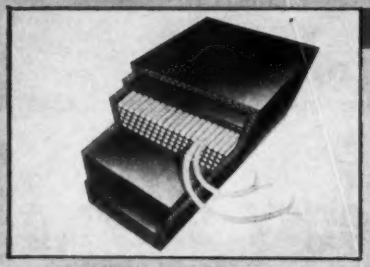
DURKEE ATWOOD V-BELTS

EXTRA VALUES
FOR USERS OF INDUSTRIAL V-BELTS



VERTICAL MATCHING ASSURES EQUAL POWER TRANSMISSION

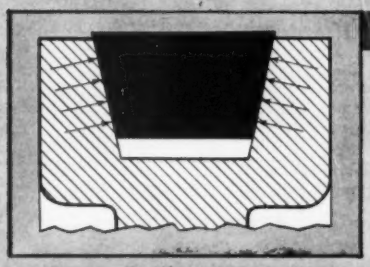
Durkee-Atwood's new vertical V-belt matching machines eliminate the "sag" error always present when V-belts are matched on horizontal matching equipment. Calibration of true running length assures equal power transmission from all belts on multiple belt drives. The machines also test for vibration and possible internal imperfections.



DU PONT CORDURA® RAYON MULTIPLE CORD CONSTRUCTION

High-tenacity Cordura® rayon cords give Durkee-Atwood Industrial V-Belts longer life, less stretch, and greater shock resistance. Use of this revolutionary new cord material is another one of the reasons why D-A Industrial V-Belts are guaranteed to satisfy on any drive.

®Trademark E. I. Du Pont De Nemours & Co., Wilmington, Del.



STRAIGHT SIDEWALLS—FULL GROOVE CONTACT

Durkee-Atwood V-Belts are manufactured with straight sidewalls to maintain full groove contact at all times giving positive drive action. Straight sidewalls reduce slippage and assure smooth, efficient power transmission. The load is distributed evenly over the entire thickness of the belt giving it longer life.

FIELD-TESTED AND APPROVED

D-A Industrial V-Belt performance and life are thoroughly proven facts—and on-the-job records back this up. Durkee-Atwood engineering and research, use of the finest materials, strict manufacturing controls and "Vertical Matching" have brought forth industrial V-belts outstanding in quality, whether for OEM or replacement drives.

New Warehouse Stocks: Atlanta • Chicago • Cleveland • Dallas Jersey City • Minneapolis • Oakland

WRITE DEPT. TW-2 TODAY FOR INFORMATION

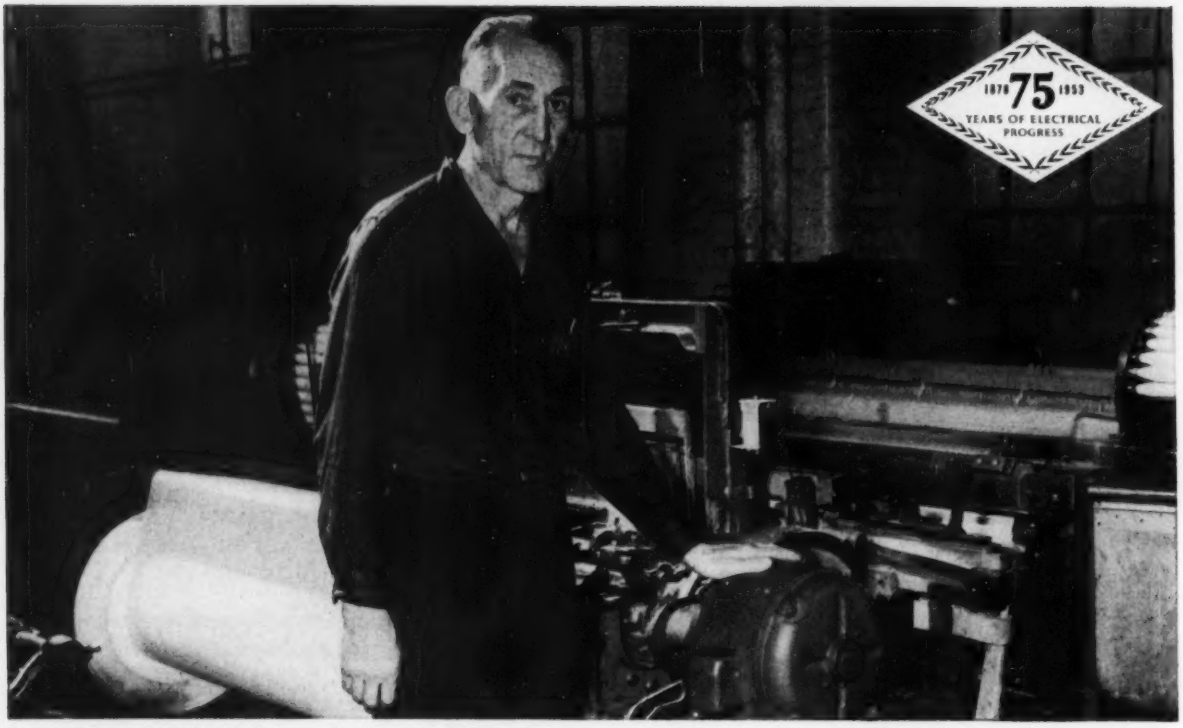
DURKEE-ATWOOD CO.

MINNEAPOLIS 13, MINNESOTA

DURKEE ATWOOD V-BELTS

DA PRODUCTS SINCE 1910

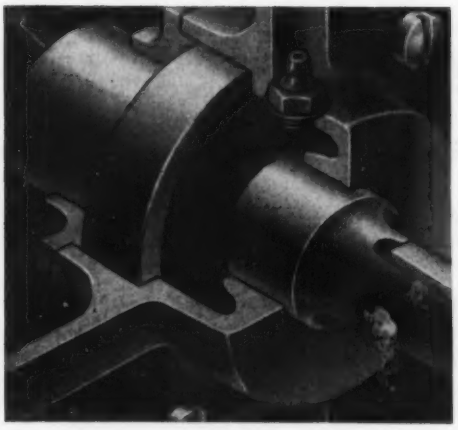
Form No. 555



"Our G-E ball-bearing loom motors . . .

. . . mean less downtime, easy service"

says Webb R. Cashion, master mechanic, Cone Mills Corporation, Greenville, S. C.



BOTH SIDES OF BEARING are surrounded with large grease reservoirs to assure more continuous operation under tough, pulsating loom loads.

"Because G-E ball-bearing loom motors are easy to re-grease, we've been able to set up a smooth-running service schedule," says Master Mechanic Webb R. Cashion of the Cone Mills Corporation, Florence Division, American Spinning Plant at Greenville, S. C.

"We don't need to tear down these motors for re-greasing. All we do is take out the drain plugs and give the bearings two or three quick shots with a grease gun."

G-E ball-bearing loom motors stand up under the rigid speed and torque requirements of today's looms. Rugged cast-iron stator frames and end shields, and totally-enclosed stator construction simplify installation and upkeep. Careful electrical design adds extra life and reliability. For more information, contact your G-E Apparatus Sales representative or write for Bulletin GEA-5858. General Electric Co., Schenectady 5, N. Y. 654-27

Years of service— then *easy* relubrication!

Bearing lubrication is no problem here. Grease reservoirs contain more than four times as much grease as in conventional sealed bearing construction. Bearing housing holds grease in constant contact with bearings. Eventually, lubrication will be necessary to length bearing life. You do it with a grease gun—without removing the end shields!

You can put your confidence in—

GENERAL ELECTRIC

IF STATIC IS A PROBLEM . . .

Get New Twitchell 7421 Worsted Oil

. . . with a Unique Combination of Properties for High Quality Worsted Processing . . .

Another great Emery first . . . New Twitchell 7421 has gone through the toughest kind of tests in major mills throughout the country. This continuous mill use has proved *the many unique advantages it offers you:*

Static Control—For integrated worsted operations, or where more than 1.5% oil is applied to "tops," Twitchell 7421 provides the static control required by high-speed processing.

Emulsion Fluidity—Water emulsions as high as 1:1 concentration are still fluid enough to be used in fine-spray application systems with ease.

Emulsion Stability—Emulsions, ranging from 1:9 (oil to water) up to 1:1, remain stable for weeks without any appreciable oil separation . . . Penetration and spreading are excellent.

Resistance to Yellowing and Odor—Repeated tests, both laboratory and plant, show that fabrics treated with Twitchell 7421 do not "heat-up," yellow, or develop odors on aging . . . particularly important for dry-finished fabrics.

Excellent Scourability—An average residual oil content of 0.3% is easily obtained in normal plant scouring, even after prolonged aging. This excellent scourability minimizes soap costs.

Rust Preventive—Emulsions of 7421 are effective inhibitors of corrosion and rust . . . reduce your service problems.

Write for Technical Bulletin ⇩
packed with important and useful information about Emery's new Worsted Oil. Mail coupon now.

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Fatty Acids & Derivatives
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Warehouse stocks also in St. Louis, Buffalo, Baltimore and Los Angeles

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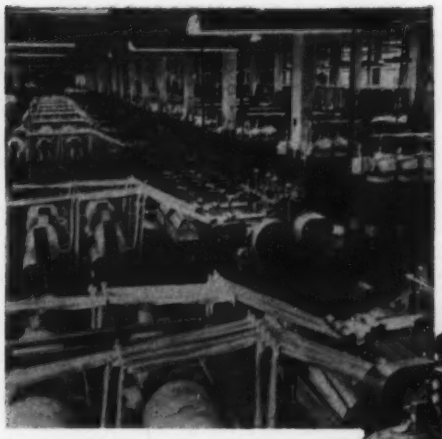
☐ I would like to run a mill trial of new Twitchell 7421 Worsted Oil as soon as possible.

☐ Please send the Technical Bulletin at once.

Name.....
Position.....
Firm.....
Address.....
City.....Zone.....State.....



50% less waste...

after installing WARNER & SWASEY PIN DRAFTERS

WARNER & SWASEY PIN DRAFTER

- Eliminates costly steps in preparation of sliver for roving
- Produces better, more evenly blended sliver in greater volume
- Uses either combed sliver or ball top
- Discharges to coiler cans or to single or double mache balls
- Applicable to French, Bradford or American systems

THIS IS THE ACTUAL FIGURE given us by a leading yarn manufacturer after the combing and drawing departments of his mill were completely equipped with Warner & Swasey Pin Drafters.

The unique design of the Pin Drafter's faller bed, combined with close nip control between faller and drafting roll sections, exercises more control over the total cross section of the fiber diagram. The results—a drastic reduction in waste. And because the pin-controlled sliver is kept open all the way to the reducer, it produces *a better over-all product.*

And at this particular mill, the improved sliver produced by the Pin Drafters resulted in additional waste savings in spinning, reeling and winding.

Savings like these add up to just part of the additional profits you'll realize when you install Warner & Swasey Pin Drafters in your mill. Call in our Field Engineer in your territory to get the complete details.

BRANCH OFFICES:
61 Rivulet St., North Uxbridge, Mass.
6910 Market St., Philadelphia, Pa.
Candler Building, Atlanta, Ga.
1820 Browning Ave., Charlotte, N.C.

TEXTILE MACHINERY DIVISION

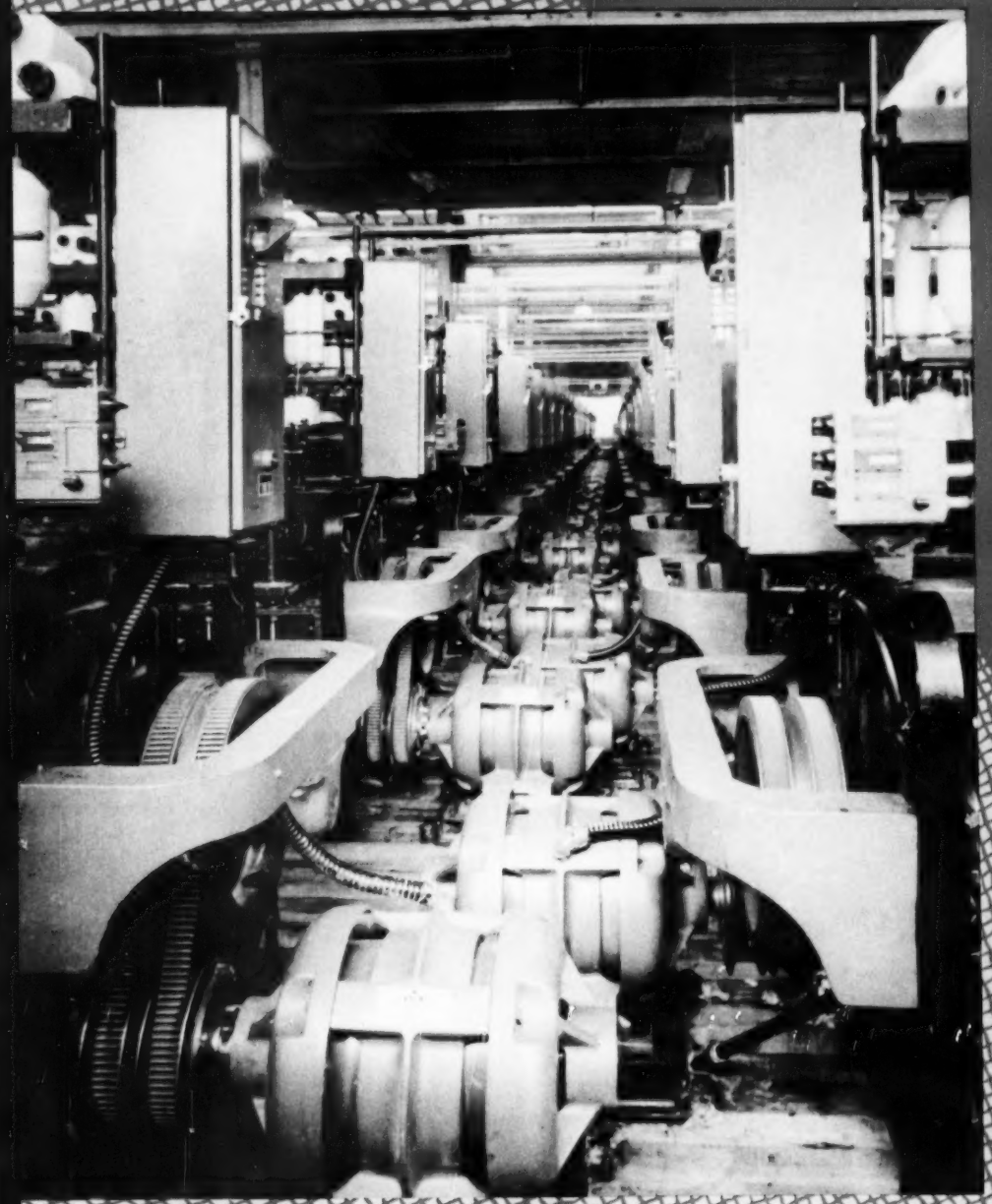
YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS WITH WARNER & SWASEY MACHINE TOOLS, TEXTILE MACHINERY, CONSTRUCTION MACHINERY

ALLIS-CHALMERS

TEXTILE DRIVES

for the Best Combination of . . .

MOTOR, DRIVE and CONTROL



FROM ONE RELIABLE SOURCE

By ordering these components in one "package" from Allis-Chalmers you not only enjoy the special design features of each as described on the following pages — but there is also undivided responsibility for their proper application, operation and service. A-2962

ALLIS-CHALMERS

A-C ALLIS-CHALMERS

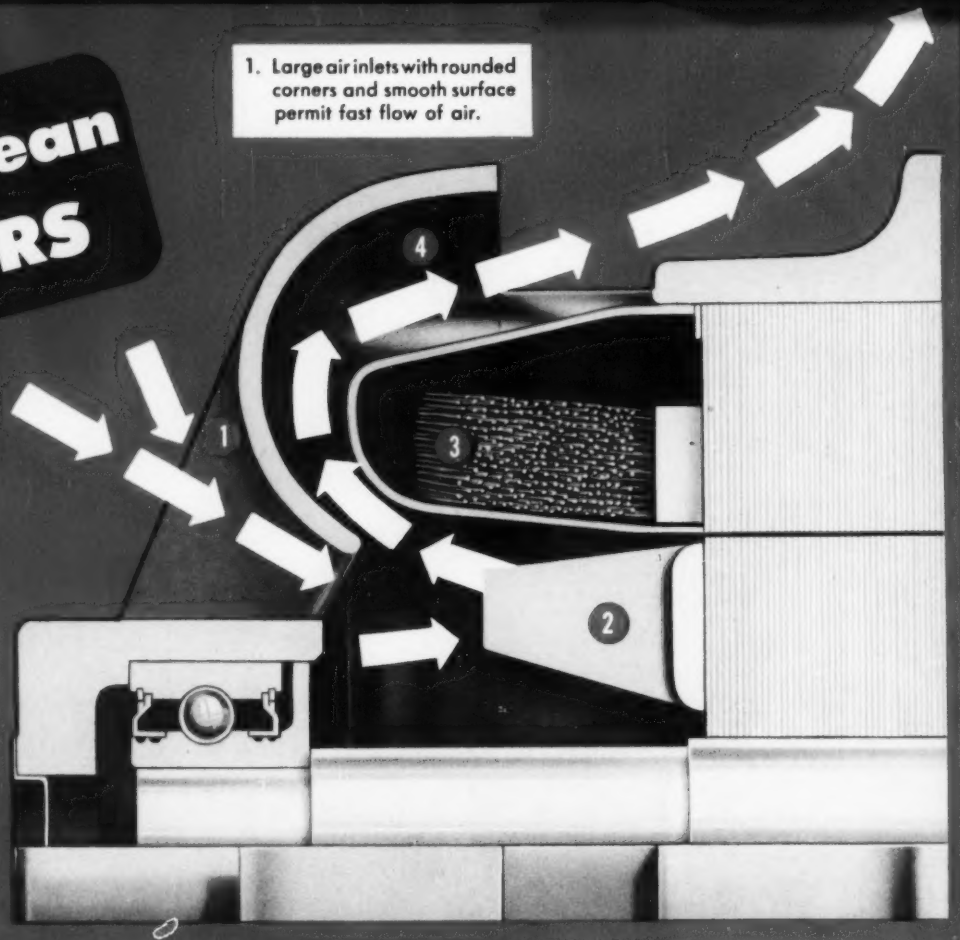
Quick-Clean MOTORS

1. Large air inlets with rounded corners and smooth surface permit fast flow of air.

2. Big fans keep cooling air moving swiftly.

3. Protected stator coil ends eliminate lint catching pockets and projections.

4. Large air outlets are shaped to aid air flow and keep air velocity high.



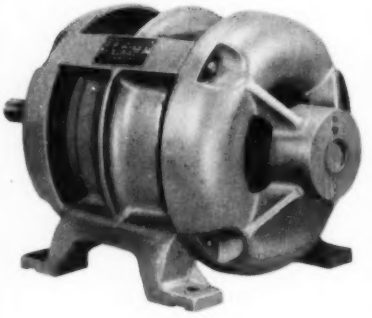
Lint Can't Clog It!

Lint and fly blow right through the *Quick-Clean* textile motor. Wide open design, rounded edges, smooth interior surfaces, and powerful fans keep air moving through the motor fast. Accumulation of lint and fly is practically eliminated. . . . Motor runs cool.

Quick-Clean motors are equipped with sealed bearings. As packed at the factory, bearings will operate several years without attention.

For more details, call your nearby Allis-Chalmers Authorized Distributor or District Office. Or write Allis-Chalmers, Milwaukee 1, Wisconsin.

Quick-Clean is an Allis-Chalmers trademark.



RATINGS

Type — Open, fan ventilated.

Hp — 2 to 75.

Current — 60 cycle; 220, 440, 550 volts; 2 or 3 phase.

Characteristics — Low starting current, normal starting torque.

Temperature — 40° C rise, continuous duty.

A-C ALLIS-CHALMERS

ALLIS-

TEXROPE

Variable Speed Drives

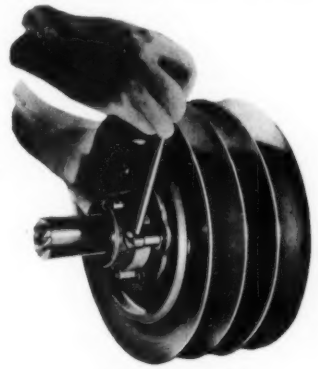
Magic-Grip bushing for fast mounting and demounting. One screw makes or breaks vise-like grip of bushing on motor shaft.

Easy adjustment — Simply turn a single adjusting screw using a lever rod that slips through a hole in the head of the screw.

Two way mounting — Sheave can be mounted on motor shaft so adjusting screw is either toward or away from motor bearing.

Fit Speed to Need

WITH ONE SHEAVE INSTEAD OF 2 OR 3



SPECIFICATIONS

For use with Q or R section belts on motors ranging from 1½ to 30 hp with motor speeds from 900 to 1800 rpm.

Why waste time changing sheaves each time you change yarn numbers? The *Vari-Pitch* sheave provides the exact speed you need for a wide range of numbers. Best of all, speed changing is both quick and easy.

Adjusts from Motor Side

New design of the wide range *Vari-Pitch* sheave permits adjustment from the motor side instead of the frame side where space is limited. New design also eliminates fumbling with screwdrivers. Turning a single screw with a straight lever rod is all that's needed to change sheave diameter. In addition, *Magic-Grip* taper bore bushing has single lock nut for fast mounting.

Whether you are building or modernizing, it will pay you to discuss your drive problems with an Allis-Chalmers Authorized Distributor or District Office. Or write Allis-Chalmers, Milwaukee 1, Wisconsin.

Texrope, Vari-Pitch and Magic-Grip are Allis-Chalmers trademarks.

CHALMERS

ALLIS-CHALMERS
CONTROL

Get Specialized Control
ENGINEERED WITH THE DRIVE

A line of full voltage and reduced voltage motor starters is available to meet the requirements of any type drive for the textile industry.

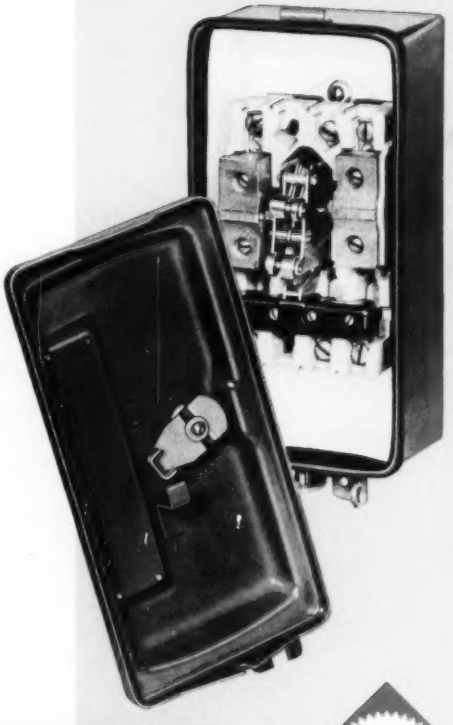
Typical is this new loom motor manual starter. Its toggle action is preferable to push button operation for reasons of convenience when mounting starter in high or low positions.

Fire Hazard Eliminated

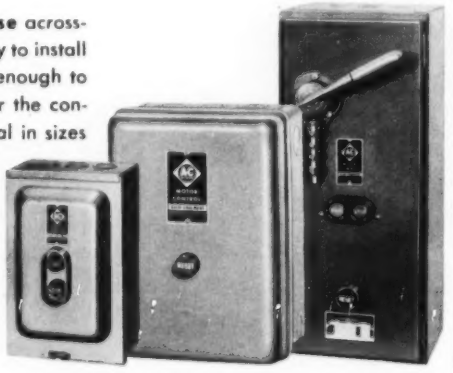
Protected type overload relays are supplied on these starters. A molded asbestos composition relay base fits into the porcelain starter base. It completely encloses the heater unit in a fireproof housing that won't carbonize from extreme heat of relay burnouts occurring under circuit fault conditions. Enclosures may be lint-proof with interlocked cover handles for safety.

Slow speed starters for card drives and roving frame drives are also available.

Solve your control problems along with your drive problems by calling an Allis-Chalmers Authorized Distributor or District Office. Or write Allis-Chalmers, Milwaukee 1, Wisconsin.



These general purpose across-the-line starters are easy to install and wire — compact enough to be installed on or near the controlled machine. Manual in sizes 0 and 1; magnetic in sizes 0-7 for motors from fractional to 600 hp; combination in sizes 0-5. Special enclosures are also available.



Manual Magnetic Combination

ALLIS-CHALMERS

Milwaukee 1, Wisconsin

A-C ALLIS-CHALMERS

from Forging to Finish

WHITIN RINGS are under Constant Quality Control

Scores of skilled ring-makers are busy today in the Ring Department at Whitin making the highest quality rings — rings that are so vital to the spinning and twisting of all fibers, both natural and synthetic. Operating 200 modern machine tools, they are capable of producing 1,500,000 rings a year in thousands of types* and sizes.

During each phase of the manufacturing process, starting with the forging of ring blanks and carrying on through turning, machining, heat treating, grinding and polishing to final inspection, Whitin rings are under constant quality control. Only the highest quality ring steel *made to Whitin specifications* and held to rigid metallurgical standards is used. The dimensions, hardness, depth of case, circularity and concentricity of each ring are tested by precision gauges and instruments to insure acceptability within close tolerances.

That's why so many mills the world over are aware of, and acknowledge, the superior quality of Whitin rings. Performance records prove that they pay real dividends in fewer ends down, longer ring and traveler life — better quality yarn.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Whitin also manufactures the Herr Conical Ring

Whitin MACHINE WORKS

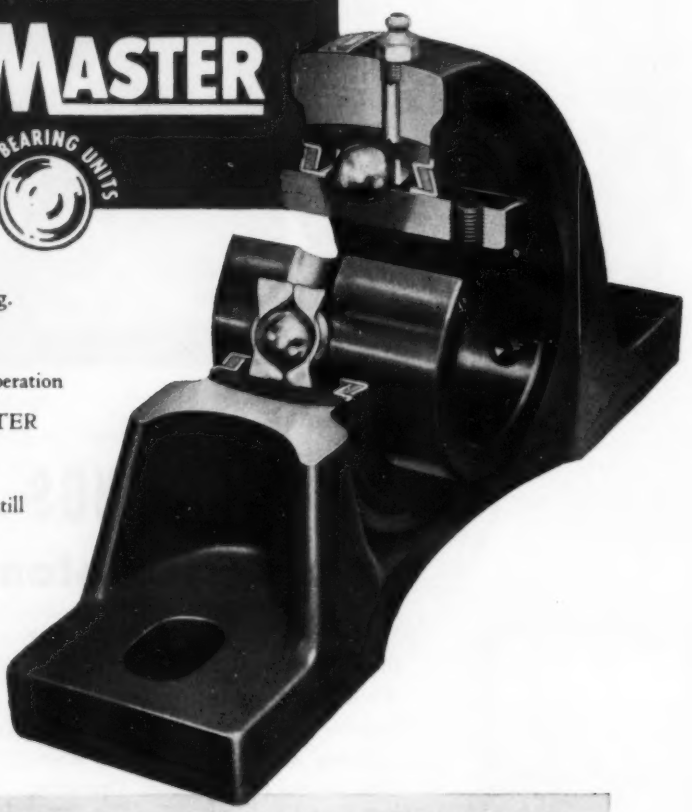
WHITINSVILLE, MASSACHUSETTS

CHARLOTTE, N. C. • ATLANTA, GA. • SPARTANBURG, N. C. • DEXTER, ME.

Big Advantage

to look for—or include—
in any textile machine

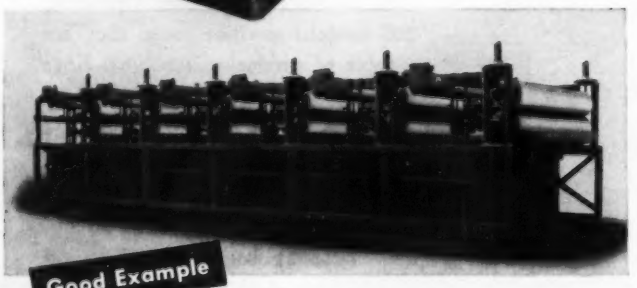
SEALMASTER
BALL BEARING UNITS



SEALMASTERS are pre-lubricated and self-aligning. Positive, permanent, centrifugal sealing keeps dirt out—keeps lubricant in. There's no housing wear—operation is smooth and quiet. And now another SEALMASTER exclusive, "Zone Hardening" of the *ball path* of the inner race, still further improves their performance—still further increases the span of trouble-free bearing service you can count upon with SEALMASTERS.

SEALMASTERS are standard equipment on many textile machines. When you buy new equipment, or whenever you replace bearings, be sure you get the advantages of SEALMASTERS It's worth insisting upon!

Four specialy designed SEALMASTER ball bearing units for use on textile machinery. Each unit retains all of the exclusive features of the standard SEALMASTER line. Housings are designed to meet machine manufacturers' specifications.



Good Example

COOK—P & N MACHINE CO., INC. This Cook Style D 100" Face Washer offers many advantages. Stainless steel tanks can be removed without disassembling any other part. Guide rolls are skyed for more complete washing. The entire machine is designed for maximum convenience, efficiency and long life. IT IS EQUIPPED WITH SEALMASTER BALL BEARING UNITS.

SEALMASTER BEARINGS

10 Ridgeway Avenue, Aurora, Illinois
A DIVISION OF STEPHENS-ADAMSON MFG. CO.

FACTORY REPRESENTATIVES AND DEALERS IN ALL PRINCIPAL CITIES

For more information, write direct or use Reader Service post card.

This is a wrinkle

A wrinkle has its "sometimes." Sometimes, on a monkey's face, for instance, it has a lot of charm. Sometimes, when it spoils the line of a skirt, the fit of a fabric, its nuisance value is considerable.

That's why Du Pont is proud to have contributed to the retirement of the wrinkle—through the scientific development of modern-living fibers. Nylon, "Orlon", "Dacron"... each in its way contributes to textiles the strength and the value of wrinkle resistance. These modern-living fibers offer customers what they want today—wearable, packable clothes, worry-free, wrinkle-free pleats, men's wear, women's wear, and home furnishings of extraordinarily care-free wrinkle resistance.

And wrinkle control is only one of the many better values for better living that you can count on when you create fabrics made from Du Pont's modern-living fibers.

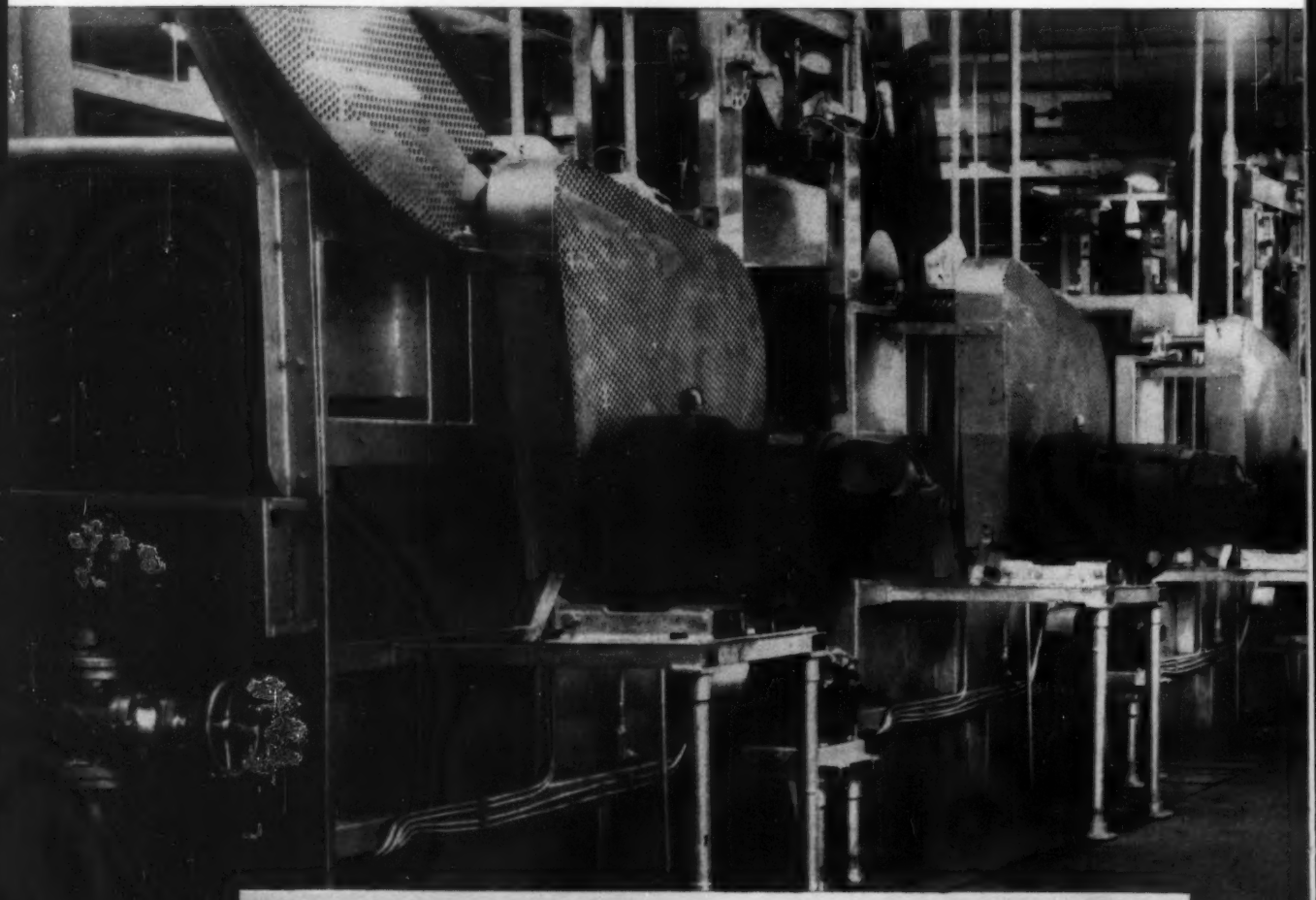
DU PONT'S MODERN LIVING FIBERS

NYLON) RAYON) ACETATE) ORLON® ACRYLIC FIBER) DACRON® POLYESTER FIBER)

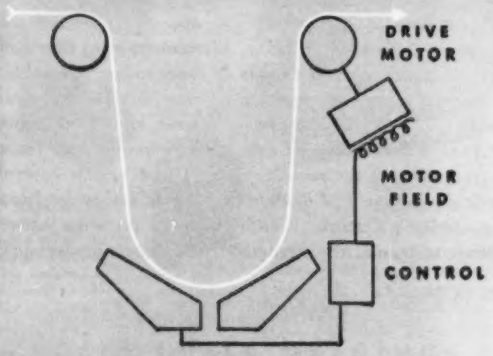
DU PONT

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

They did what you can do to produce more

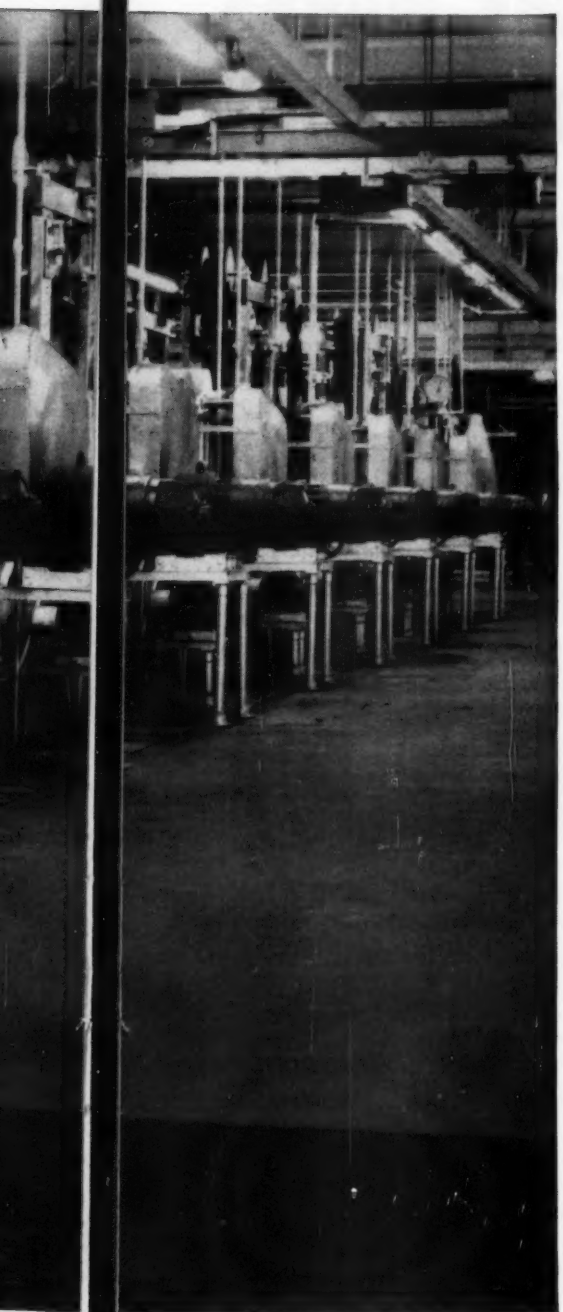


THIS NEW TENSIONLESS CONTROL DEVICE MAINTAINS SYNCHRONIZED OPERATION AT HIGH SPEED



As the cloth moves from one section to the next, a metal plate is so located that the cloth can touch it. When the wet cloth touches the plate, one speed relationship between the two sections is obtained. When the cloth is not touching the plate another speed relationship holds. Thus, the loop of cloth moves up and down a fraction of an inch several times a second, effecting a change in speed ratios. This maintains synchronism, without tension, between the finishing range sections.

Here's how this finishing range drive reduces costs and increases production



The drive for this new Riggs and Lombard "LAXLOOP" continuous washer, installed in the Bachmann Uxbridge Mill, offers many important operating advantages. Simplified controls and automatic tensionless synchronization afford greater ease of operation, economy of water and reduced labor costs.

The whole range can be controlled from one spot

Two controls, one for tensionless synchronizing and one for the drive motors, make it possible to control the whole range or each tub individually from one location. The individual drive-motor controls allow the operator control over each tub, or any combination of tubs, for setup and adjustments. The tensionless synchronous control allows 15 to 20 hours continuous operation without rethreading. Formerly, rethreading was necessary every three to four hours.

Automatic controls save water and prevent tie-ups

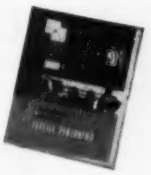
The control scheme also automatically shuts off the water supply every time the machine is stopped. With this system, the mill uses an average of less than three gallons of water per pound of material processed. This saving in water, with the resultant saving in steam, is of tremendous value to the mill. In addition, electric knockoff devices automatically stop the washer in case of a tangle or tie-up. An indicating light on the control panel even shows the operator which tub to go to if a tie-up occurs.

Call Westinghouse early on every job

If you are planning new equipment, a new mill, or plant modernization, be sure to call in Westinghouse early on every job. You'll get application help and the right equipment to do the job *best.*

HERE'S AN IMPORTANT FREE BOOK

This 32-page book gives you additional information about Westinghouse finishing machine drives. There are sections on tension control, cost factors, speed ranges, operating economies, maintenance features, and other vital points. Write for Booklet B-4034, "Westinghouse Equipment for Textile Finishing." Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-94917



YOU CAN BE SURE... IF IT'S

Westinghouse

EQUIPMENT FOR THE TEXTILE INDUSTRY

WESTINGHOUSE

It's never too hot!
It's never too cold!
It's never too wet!
FOR PLASTILUBE!

Lubrication Bulletin

Published by The Warren Refining & Chemical Co., Cleveland, Ohio

For trouble-free, economical lubrication, it's time to change to **PLASTILUBE!**

MULTI-PURPOSE PLASTILUBE MARKS MILESTONE IN LUBRICATION HISTORY

Pioneer Plastilube Outperforms in Major Industries

Because of its wide range of applications, PLASTILUBE, the original bentone lubricant, has proved outstandingly successful in getting the "bugs" out of many of industry's most difficult lubricating problems.

Saves Time, Money, Equipment

In industry after industry, the change to pioneer PLASTILUBE has produced remarkable savings in time, maintenance and lubricants.

Steel Mills, among the first to recognize the extraordinary properties of this revolutionary new lubricant, specify PLASTILUBE in many applications replacing ordinary metallic soap greases.

In one instance where the temperature is approximately 500° F., it not only provides a superior lubricant, but maintains a perfect seal for 10 days. Formerly with ordinary lubricants, lubrication was required every 8 hours!

New Uses Every Day

Because PLASTILUBE is a multi-purpose lubricant, more and more firms in widely diversified industries are finding new uses for it every day.

It is used today in steel mills, ceramic plants, paper mills, breweries, machine tool shops and in scores of other industries.

The young engineer shown above is using a blowtorch to demonstrate the dramatic heat stability of the new lubricant, PLASTILUBE, developed by The Warren Refining & Chemical Company of Cleveland. Warren's continuing program of laboratory testing and control maintains the high quality of the product.

AMERICAN MONORAIL ADOPTS PLASTILUBE

One of the latest of many nationally-known companies to adopt PLASTILUBE is the American Monorail Company of Cleveland for use in their special underframe cleaners which operate in spinning frames in cotton mills.

"Successor To Grease"

Cleveland, Ohio—From this city in the heart of industrial America comes conclusive proof of the greatest advance in lubrication since the use of additives in motor oils.

This amazing product, PLASTILUBE, which performs every lubrication function without most of the limitations of soap base greases, was developed by The Warren Refining & Chemical Company.

For over three years, PLASTILUBE has undergone the rigid test of actual use in all types of industrial applications and has passed with flying colors.

Functions Under Severe Conditions

This revolutionary lubricant has no melting point and has excellent pumpability at low temperatures. Consequently it performs more efficiently over a wider temperature range than ordinary greases. It is a stable chemical compound without the fatty acids, metallic soaps and emulsifiers which cause grease to melt, break down, or deteriorate.

Cuts Waste, Increases Safety

PLASTILUBE is a great aid to good housekeeping and safety records. Because it **won't** melt, it **won't** run or drip from overhead equipment, such as cranes or conveyors. This means less waste, less clean-up and greater safety on slippery floors. What's more, it is a boon for processers of food and manufacturers of other products where contamination means serious losses.

STRICTLY BUSINESS

BY JACK CLEARY

Here's New Lubricant — Successor To Grease — With No Melting Point

High operating temperatures required in many industrial processes are tough on grease. The lubricant melts and runs out of gears and bearings and must be replaced frequently with fresh product if the production line is to be kept moving.

That's why many a major oil company has been struggling for years to develop a lubricating grease capable of withstanding higher and higher temperatures and thereby effecting economies for consumers.

It remained, however, for a Cleveland company to come up with a grease that is not only resistant to high temperatures but, in fact, will not melt at all. It is a milestone in the lubrication industry.

Plastilube has several unusual characteristics. Most outstanding is it is all-purpose for virtually every automotive and industrial use and it has no melting point, being able to withstand temperatures up to more than 500 degrees Fahrenheit.

Two years of laboratory research by Warren went into perfection of Plastilube. This was correlated with a basic research program independently conducted for about four years at Mellon Institute at Pittsburgh. Result: first product of its type to hit the market. .

Reprinted from The Cleveland News, April 28, 1950

* * *

Why not investigate the possibilities of PLASTILUBE for **your lubrication needs?**

Write for full details to Dept. T.W. 1, The Warren Refining & Chemical Co., 750 Prospect Ave., Cleveland 15, Ohio.

the Old Grey Mare

is better than ~~ain't what~~

she used to be

Thanks to Meadows "Conversions," thousands of long-service spinning and twisting frames... many of them old enough to have been "turned out to pasture" . . . are running faster and smoother, and turning out more yarn than they did in the yearling days.

A typical Meadows "Conversion" consists of the installation of individual drive pulleys, ball bearing tape tension pulleys, aluminum alloy separators, silent chain drive—and high strength polished and ground steel shafting, mounted on heavy-duty, self-aligning ball bearings.

The result is lower power consumption, even tension at all times, a more uniform speed and twist, fewer ends down, and increased yarn production . . . at far less than the capital investment cost of new frames. Can be quickly and easily installed. Write or call us for estimate and particulars.

MEADOWS CONVERSIONS

MEADOWS MANUFACTURING COMPANY • ATLANTA, GEORGIA

Representatives:

JAMES P. COLEMAN
P.O. Box 1351
Greenville, South Carolina

MATTHEWS EQUIPMENT COMPANY
93-A Broadway
Providence, Rhode Island

SAM HOGG
Atlanta, Georgia

COLEMAN-ROWE, INC.
P.O. Box 782
Salisbury, North Carolina

Life-Line AV
Adjustable Speed Drive
Remote Control
Pushbutton Station
Life-Line D-C
Driving Motor

AV Adjustable Speed Drive

speed control of d-c motors from a-c line

You get precise control from a-c power with the Life-Line AV Packaged Drive. Adjustable speeds —through a 20 to 1 range—may be preset before motor is started *or* changed after motor is running. You can start the motor, stop it, or change the speed all from a remote control station.

Pictured at the left are the three basic parts of this Life-Line AV drive. Notice the cabinet. In the lower section you'll see the Life-Line motor-generator set. It's completely pre-lubricated to eliminate faulty lubrication maintenance.

Installed in the upper half of the cabinet are all the controls and motor protection. Choice of electronic or selenium exciter provides wide flexibility in applications. Complete overload and undervoltage protection are included. Complete unit is factory wired and ready for installation.

The driving motor is the SK d-c motor with many of the Life-Line features. Smaller sizes have pre-lubricated bearings proved in every phase of industry.

Wherever you must have precise control with only a-c power available, you'll find this Life-Line AV Packaged Drive ideal. You get the complete drive—no extra control to buy. You get a compact, neat installation. You get undivided responsibility. Westinghouse is responsible for the package.

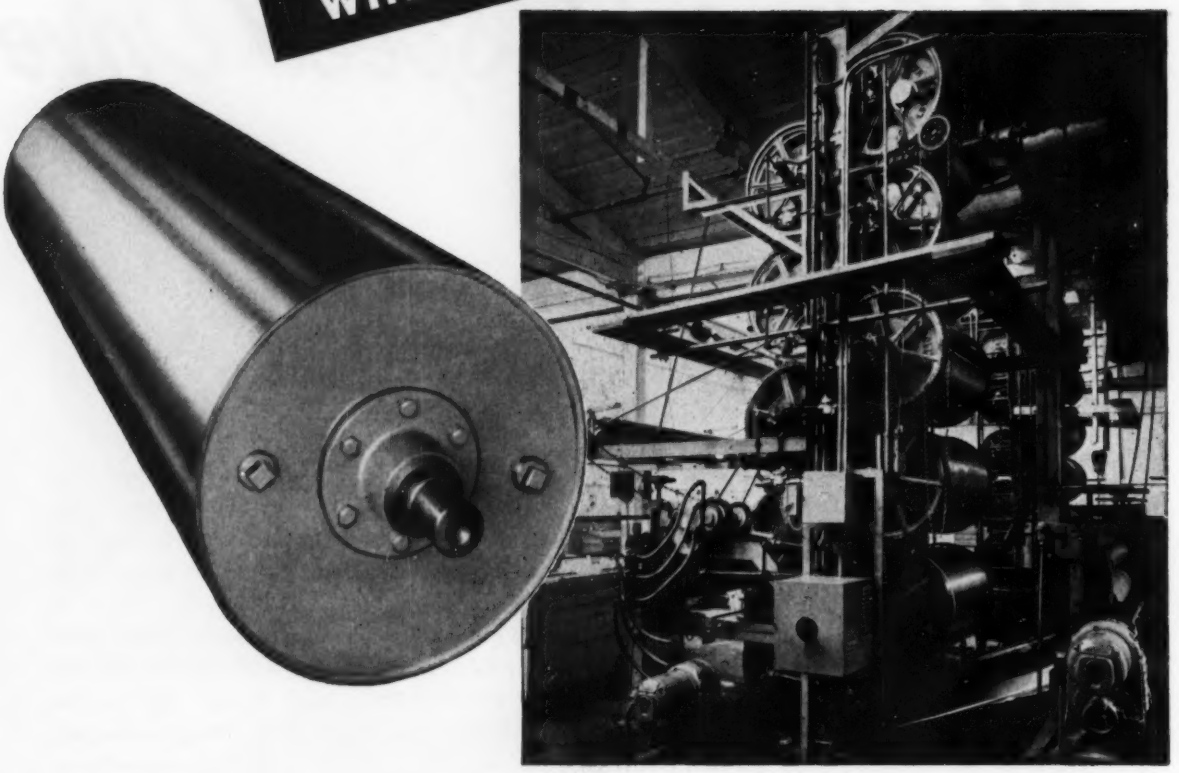
Today is the time to get more from your machines. Let this AV Drive help you do it. Ask your Westinghouse representative for complete information, or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

J-21636-A

YOU CAN BE SURE...IF IT'S

Westinghouse

Save Fuel with Stainless Steel dry cans



In many textile drying systems Armco Stainless Steels assure greater efficiency—with important savings in fuel and steam.

Stainless steel conducts sufficient heat for drying at normal speeds. But it doesn't waste fuel dollars by conducting far more heat than is needed.

The high strength of Armco Stainless Steels makes it possible to use lighter gages for the cylinder walls. And because of the excellent corrosion resistance of Armco Stainless, you needn't worry about rust spots or other discoloration.

Resists Denting

The hard smooth surface of this solid, corrosion-resisting steel also resists denting and scratching. And it is exceptionally easy to clean.

In bleaching and dyeing equipment too, Armco Stainless Steels step up efficiency, keep production costs down. Delicate colors are not affected by chemical reaction on sensitive dyes. No "corrections"—no boil-outs are needed before changing chemicals.

Let your equipment supplier show you how other mills are profiting from the use of Armco Stainless Steels. There is a grade for practically every application.

ARMCO

ARMCO STEEL CORPORATION

4312 Curtis Street, Middletown, Ohio • Plants and sales offices from coast to coast • Export: The Armco International Corporation

Condor V-Belts–More use per dollar

Condor V-Belts–More use per dollar

Condor V-Belts–More use per dollar

Condor V-Belts–More use per dollar

Condor V-Belts–More use per dollar

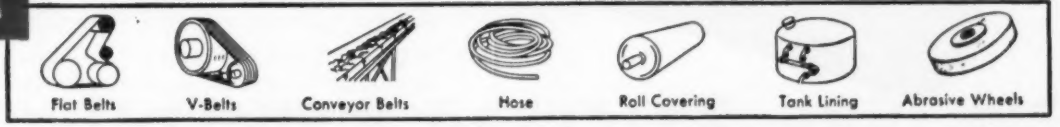
Condor V-Belts–More use per dollar

LOWER V-BELT DRIVE COSTS . . . for several reasons . . . Straight sidewalls provide more grip, less slip, longer life. Every Condor V-Belt is destretched during manufacture, and the pulling section is micro-positioned where good engineering says it should be. This gives you a smooth running drive, saves downtime for belt take-ups. You get longer V-belt life . . . MORE USE PER DOLLAR. Also in special oil-, heat-, and static-resisting types . . . Get the engineering facts. Ask the R/M distributor for Bulletin 6868 . . . He'll tell you, too, how you get MORE USE PER DOLLAR with R/M hose, transmission and conveyor belts.

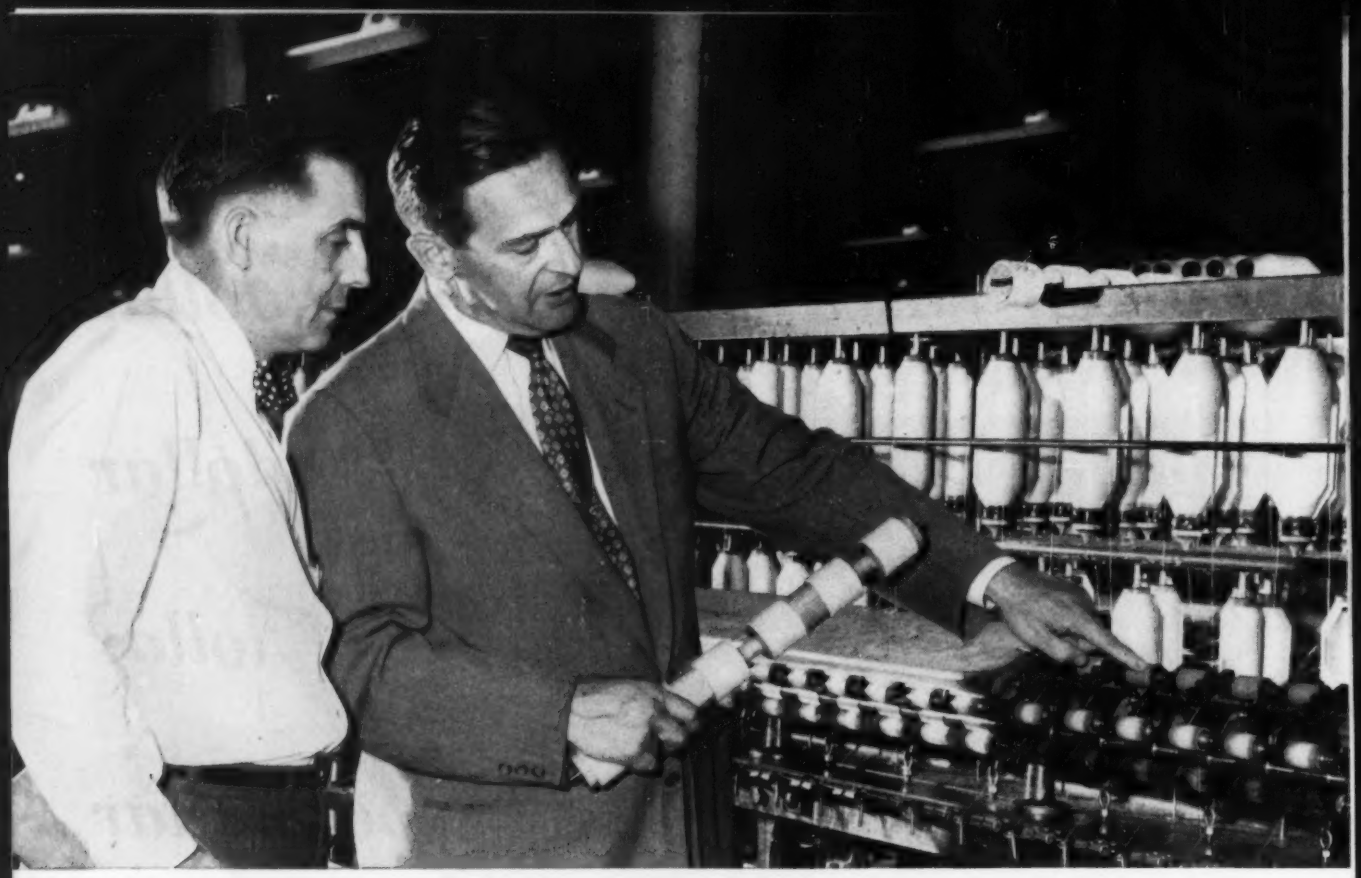
R/M

MANHATTAN RUBBER DIVISION—PASSAIC, NEW JERSEY

RAYBESTOS-MANHATTAN, INC.



Other R/M products include: Industrial Rubber • Fan Belts • Radiator Hose • Brake Linings • Brake Blocks • Clutch Facings
Asbestos Textiles • Teflon Products • Packings • Sintered Metal Parts • Bowling Balls

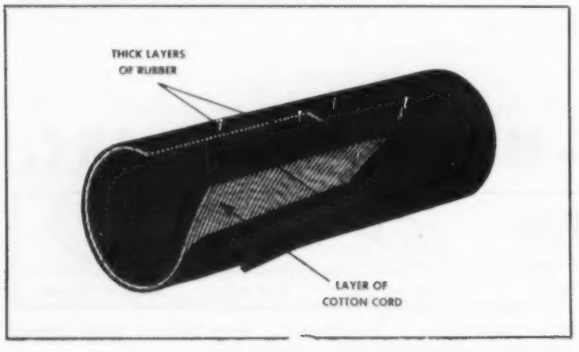


You save money when you use long-running aprons like these

More and more textile men are finding from personal experience that Armstrong's Accotex® Aprons can be depended on for 6 to 8 years of three-shift service.

For example, here's a quote from a recent letter about one mill man's experience with these aprons:

"We are forwarding several Accotex Aprons taken off a long-draft frame started up with them in November of 1943. These aprons have run on the bottom position for 8 years, 9 months on combed cotton 16's and 30's."



The explanation for such outstanding service is shown in the cutaway drawing at the left. Notice the Accotex Apron's patented, seamless, three-layer construction. Each layer is designed to do its own particular job.

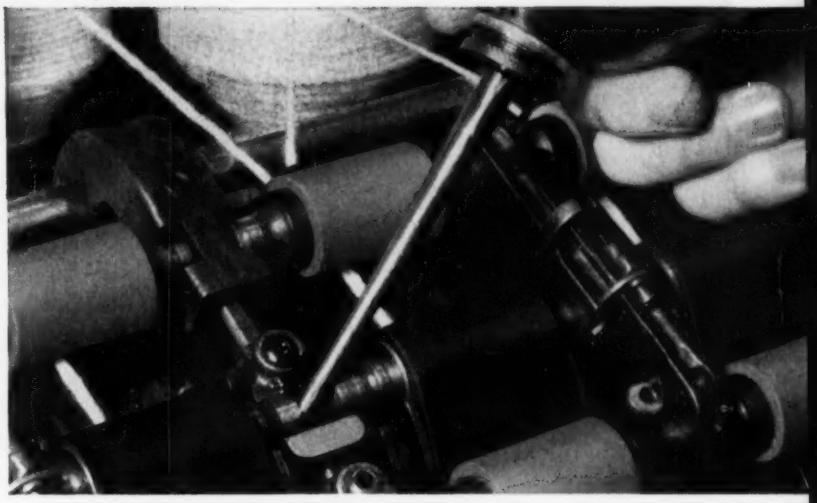
The seamless outer drafting surface, made of tough synthetic rubber, is given a finishing treatment that leaves it smooth and resistant to cracking and scuffing. The inner layer is also synthetic rubber, compounded to withstand the constant abrasion of the nose bar. Between these layers, a continuous winding of sturdy cotton cord prevents stretching or curled edges.

Vulcanized together, these three layers make an apron with no seams, no rough spots, no weak points—an apron that runs clean for years and years with a minimum of yarn variation.

Try a test installation of Accotex Aprons and see how well they perform. Your Armstrong representative will be glad to help you set up a test. Call him today or write Armstrong Cork Company, Textile Products Department, 8302 Arch Street, Lancaster, Pennsylvania. Available for export.

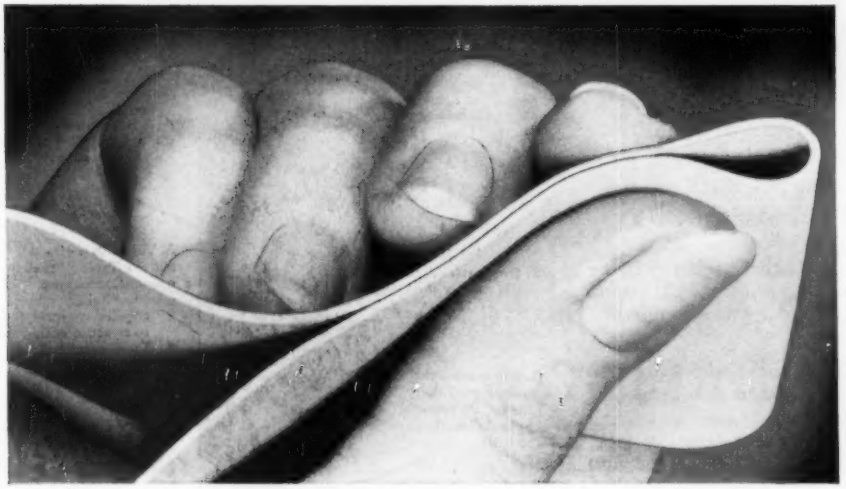
SMOOTH FINISH

Each seamless Accotex Apron is precision ground to the exact thickness you specify. A patented surface treatment then gives it lifetime resistance to scuffing and cracking. It will wear evenly and won't roughen, even after years of service.



CLEAN RUNNING

Accotex Aprons don't absorb oil or soften when exposed to dyes or commonly used textile solvents. They run efficiently without sweating under any normal mill conditions. Result: they don't pick up lint, and they stay clean running for years.



SUPER FLEXIBLE

Accotex Aprons have the extra flexibility and abrasion resistance needed on single-apron frames. They hug the nose bar closely without buckling and insure smooth slip-roll action. Their non-oxidizing rubber serves to keep them flexible.

ARMSTRONG'S ACCOTEX APRONS

one of Armstrong's complete line of textile mill supplies

NO SOFT SPOTS

with this NEW Taylor Control

Taylor Squeeze Roll Pressure Controls in use on a high speed Rayon Slasher installed in a well-known Southern Mill.

For the first time, you can know just how much pressure you have on both ends of your size box squeeze roll. Taylor's new Squeeze Roll Pressure Control measures and controls actual *pounds of pressure* applied *directly* to the roll . . . unaffected by friction or leaking air.

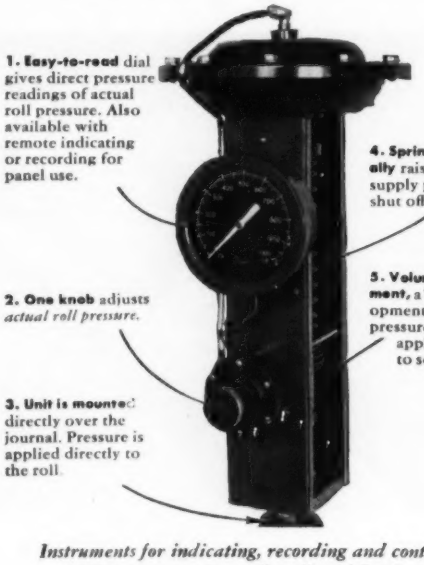
RESULT: 1. No soft-spots in yarn. Out-of-round roll conditions quickly detected. **2.** Uniform penetration of size.

One unit is installed on each end of the roll. Each can apply up to 1000 pounds pressure, for a total pressure of 2000 pounds plus the weight of the roll.

For calender rolls, dye padder rolls, and other higher pressure applications, a similar unit is available with a 2500 pound capacity . . . to deliver up to 5000 pounds pressure plus the weight of the roll, when used in pairs.

Taylor Squeeze Roll Pressure Control has been thoroughly field tested in several textile mills, for over a year. A logical outgrowth of Taylor's development of the volumetric measuring principle for difficult tension and pressure measuring jobs. Other units are available for pressures up to 200,000 lbs. and tensions from 5,000 to 20,000 lbs.

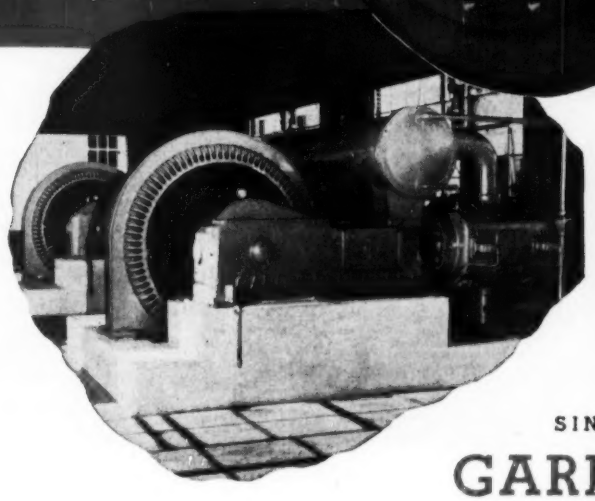
For full details on Taylor's Squeeze Roll Pressure Control, or for help on any similar pressure control problem, write: Taylor Instrument Companies, Rochester, N.Y., or Toronto, Canada.


1. Easy-to-read dial gives direct pressure readings of actual roll pressure. Also available with remote indicating or recording for panel use.
2. One knob adjusts actual roll pressure.
3. Unit is mounted directly over the journal. Pressure is applied directly to the roll.
4. Spring automaticity raises roll when supply pressure is shut off.
5. Volumetric element, a Taylor development, measures pressure being applied directly to squeeze roll.

Instruments for indicating, recording and controlling temperature, pressure, flow, liquid level, speed, density, load and humidity.

TAYLOR INSTRUMENTS MEAN ACCURACY FIRST

the hole story of HA efficiency



EACH opening in the HA air cylinder has been plotted to fill your lines with extra cubic feet of air for every power dollar. Some holes take the free-flowing compressor valves. Some admit water to the effective cooling jacket. Other openings hold regulators that keep the HA in step with your air demands. Get the whole story today. Send for Bulletin HAC-36.

SINCE 1859

GARDNER-DENVER

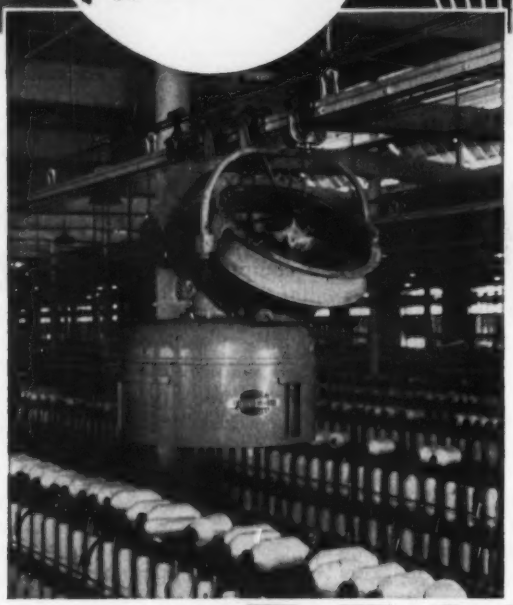
Gardner-Denver Company, Quincy, Illinois

In Canada: Gardner-Denver Company (Canada), Ltd.,
14 Curity Ave., Toronto 13, Ontario

Atlanta, Ga.; Birmingham, Ala.; Knoxville, Tenn.; Washington, D. C.; New York, N. Y.; Philadelphia, Pa.; Pittsburgh, Pa.; New Orleans, La.

THE QUALITY LEADER IN COMPRESSORS, PUMPS AND ROCK DRILLS

AMERICAN MONORAIL *Automatic Cleaners*



You can eliminate fly, keep ceilings clean, reduce machine stoppage, lower cleaning costs and get better running work with American MonoRail Automatic Overhead Cleaners. Consultation with an American MonoRail engineer will reveal why Controlled Cyclonic Cleaning is used in so many textile plants. Write for 24-page booklet explaining cost-saving advantages.

THE AMERICAN MONORAIL COMPANY

13108 ATHENS AVENUE **CLEVELAND 7, OHIO**

Now CUTLER-HAMMER *proudly presents the spectacular new* ★★★ *motor control*

Entirely new in concept and design. Wide-open accessibility. Remarkably improved performance. Vastly increased operating life.

This is important news for the men of industry. It marks a new day of improved electric motor performance. A new day of more accurate and more dependable motor protection. A new day of simpler, easier, faster motor control installation. This is the quick story of the spectacular new Cutler-Hammer ☆☆☆ Motor Control. But thousands of words could not tell this story in its important details.

Cutler-Hammer ☆☆☆ Motor Control can be known *only* by its performance. Field-tested for more than two years in hundreds of the most trying motor control assignments, its first users have said time and again that there has never been anything like it before. And these users were *looking* for faults. You need not be moved by their enthusiasm. But you cannot ignore their factual reports. Try it. Test it. Compare it. Prove it. Your nearby Authorized Cutler-Hammer Distributor is ready to serve you. Order from him today.

CUTLER-HAMMER, Inc., Milwaukee 1, Wisconsin.

☆ ☆ ☆

★ *installs easier*
★ *works better*
★ *lasts longer*

CUTLER-HAMMER
☆ ☆ ☆
MOTOR CONTROL
C-H

SEE NEXT PAGE ➡

CUTLER-HAMMER ★★★ MOTOR CONTROL

The 3 Stars stand for 3 New Standards

☆ 1...An entirely new standard of easier, faster, lower-cost motor control installation. Any electrician can prove it.

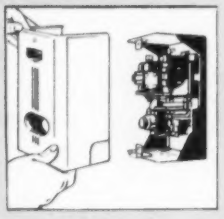
☆ 2...An entirely new standard of dependable motor control performance; reliable uniform response and more accurate overload protection. Any use will confirm it.

☆ 3...An entirely new standard of trouble-free long life; surely the finest starters both electrically and mechanically you have ever known. Any comparison shows it.

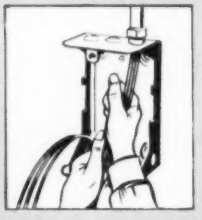
Installs easier...

Factory records everywhere today show the cost of installing motor control is usually much greater than the amount spent to buy the control equipment, often two or three times as much. Here you see why this new, better motor control actually costs less.

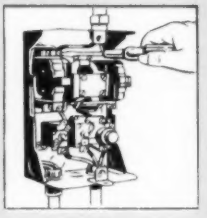
Just loosen two screws and off comes wrap-around cover. Screws stay in cover, do not fall on floor. Just loosen three screws and out comes the entire mechanism on unit plate.



Making conduit connections and pulling wires is a cinch; no starter mechanism in the way. No damaged starter parts or skinned knuckles. Wide-open accessibility, no side walls.

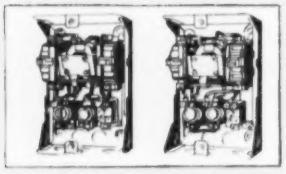


Easy straight-through wiring. All line terminals are at top, all load terminals at bottom. All terminals visible from front, all with solderless pressure connectors. Plenty of wiring room.

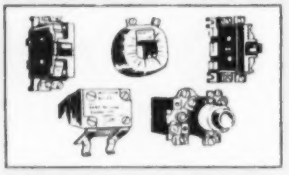


Works better...

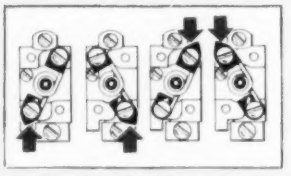
Better performance; dependably uniform operation, trouble-saving and cost-cutting more accurate overload protection. These are more than mere claims in this new Cutler-Hammer control. Field-tested over two years. Compared with every make of control by actual users...to have most say, "Better than anything we have ever used."



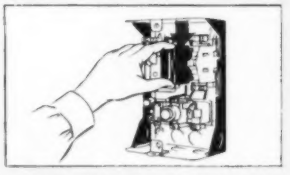
3-Coil Overload Protection. Another Cutler-Hammer "first," complete protection against single phasing as an optional feature in standard starter construction in standard enclosure.



5-Unit Construction. Just five units... magnet coil, armature, two contact blocks, and overload relay...and any unit can be removed from *front* without disturbing any other.



4-Position Overload Coils. Famous C-H Eutectic Relay now adjustable so motors can work harder *safely* without nuisance tripping. Each coil offers range of 4 ratings, selected by positioning.



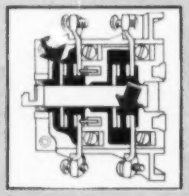
Electrical Interlocks. Interlock blocks easily added to provide up to 4 extra control circuits; normally open, normally closed, or both.

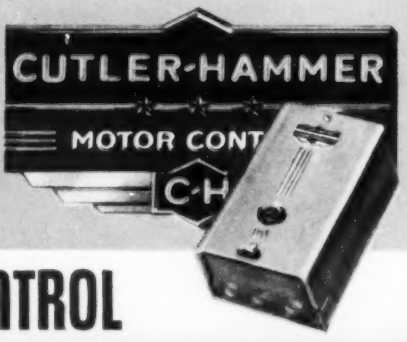
Lasts longer...

Many users will ask, "Why longer life? We have never had a Cutler-Hammer starter wear out!" But there are two reasons for even longer life. First, it brings better performance to those "killer" jobs where industry expects Cutler-Hammer engineering leadership to prevail. Second, and most important, it decreases the *rate* of wear to the point where maintenance care and cost are virtually *eliminated* on most installations.

Armature pivoted on a rolling bearing for smooth, quiet operation. No rubbing, no sticking, no slamming. New light-weight moving parts. Less weight, less bounce; less bounce, less arcing.

New pressure-quench arc chambers. Heat of any arc rapidly expands confined air; increased pressure snuffs arc. Contacts are *vertical* dust-safe design; twin-break contacts further minimize arcing.





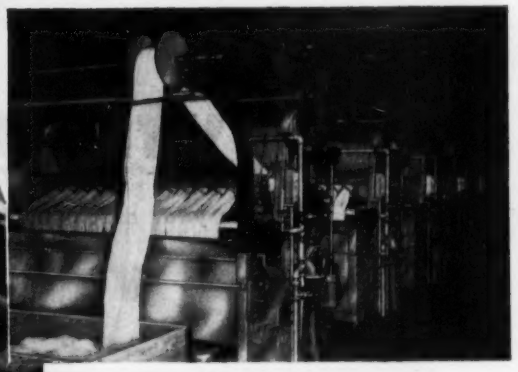
Cutler-Hammer, Inc.—Milwaukee 1, Wisconsin

CUTLER-HAMMER ★★★ MOTOR CONTROL

HUNTER *equipment safeguards quality at* Princeton
WORSTED MILLS

The Princeton Worsted Mills, pioneer in the development of 100% Dacron* fabrics, safeguards its enviable reputation for quality production by maintaining strict quality control in every phase of manufacture.

It is only natural, therefore, that in Princeton mills . . . as in many other fine plants throughout the world . . . Hunter "plus production" equipment is preferred for the finishing of *synthetics, blends, woolens* and *cottons.*



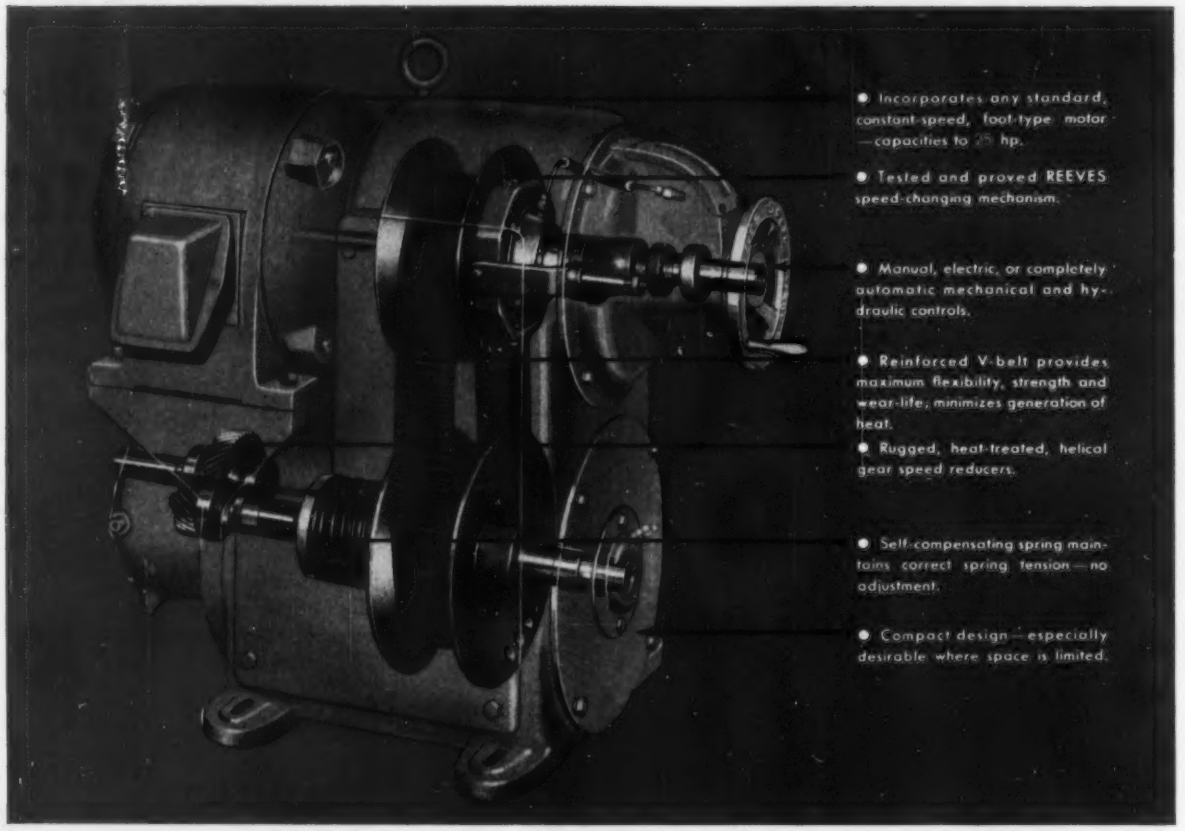
The Hunter Continuous Cloth Washer, used in line with a Hunter Scutcher and Pneumatic Squeeze Rolls, affords continuity of production from fulling mill through dryer. This novel Washer is maintaining high production levels at Princeton Worsted and other leading mills. Send for BULLETIN CCW.

*DuPont TM for Polyester Fiber

plus production
- efficient operation of modern equipment
- less down time of equipment
- quick, easy repair . . . rapid parts delivery

JAMES HUNTER MACHINE COMPANY
NORTH ADAMS, MASSACHUSETTS FOUNDED 1847

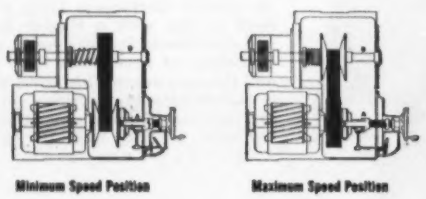
BUILT BY HUNTER . . . IT'S DEPENDABLE
JAMES HUNTER MACHINE CO. Hunter NORTH ADAMS MASS.


• Incorporates any standard, constant-speed, foot-type motor —capacities to 25 hp.
• Tested and proved REEVES speed-changing mechanism.
• Manual, electric, or completely automatic mechanical and hydraulic controls.
• Reinforced V-belt provides maximum flexibility, strength and wear-life; minimizes generation of heat.
• Rugged, heat-treated, helical gear speed reducers.
• Self-compensating spring maintains correct spring tension—no adjustment.
• Compact design—especially desirable where space is limited.

Everything's built in—

and built to give your machines trouble-free, stepless speed adjustability in the

REEVES Vari-Speed Motodrive®



REEVES Vari-Speed Motodrive utilizes proved REEVES operating principle of a V-belt driving between two pairs of cone-shaped discs which are adjustable to form an infinite number of driving and driven diameters. Discs are mounted on parallel shafts. One shaft receives power at constant speed from motor —other delivers power at infinitely adjustable speed to gear reducer from which desired speed is transmitted to driven machine.

Here's a complete variable speed power plant in one, space-saving unit . . . incorporating an operating principle proved in 300,000 installations . . . ruggedly constructed for years of trouble-free service. Without stopping the machine, a turn of the REEVES handwheel or touch of a button provides the correct speed for every operation . . . enables the machine to do *more* work and *better* work at lower cost. Available in vertical and horizontal designs; capacities to 25 hp; and speed ratios as great as 10 to 1. For the machines you are now operating and the new ones you plan to buy, obtain all the benefits of stepless speed adjustability by specifying modern REEVES Vari-Speed Motodrive. Send for free catalog No. W88a-G.

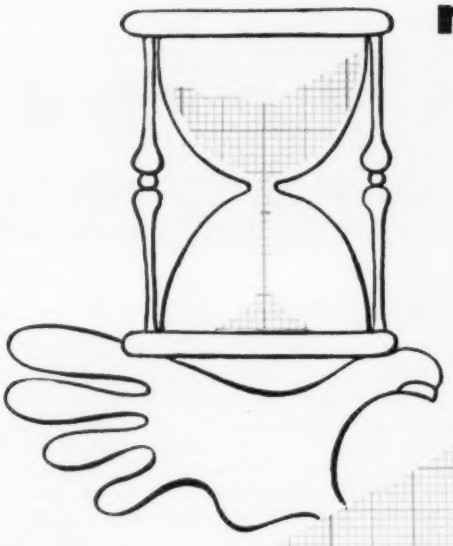
REEVES PULLEY COMPANY • COLUMBUS, INDIANA

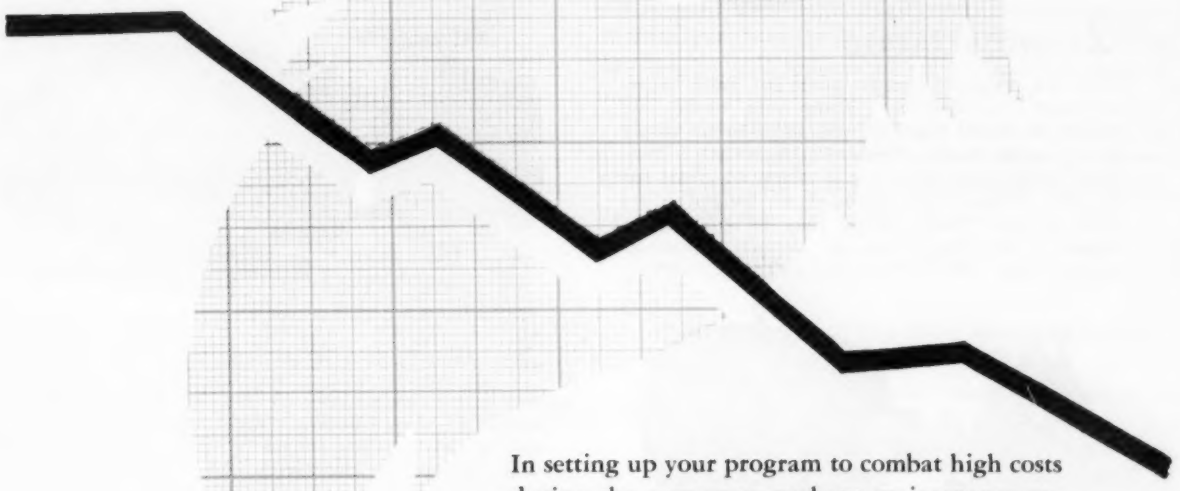
Recognized leader in the specialized field of variable speed control

accurate · variable
REEVES *Speed Control*

time to trim

maintenance costs





In setting up your program to combat high costs during the new year, perhaps maintenance expense offers an opportunity for important dollar savings. It's a controllable expense—and one that can often be sharply reduced through improved lubrication.

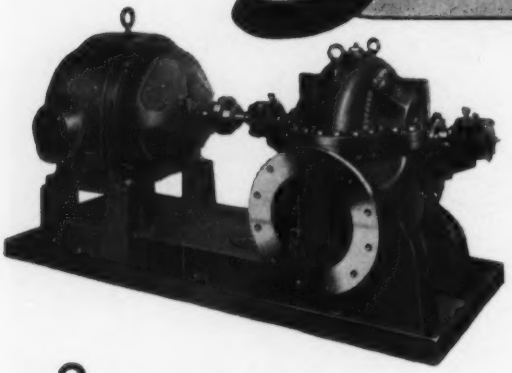
If you haven't analyzed this important phase of maintenance recently, we suggest that you talk to a Gulf Sales Engineer. He will make some worth-while suggestions that will help you reduce costs and improve the performance of your equipment.

GULF SERVES INDUSTRY

GULF OIL CORPORATION · GULF REFINING COMPANY
PITTSBURGH 30, PA.

"Buffalo" *Tips on Better Pumping*

3 TYPES of PUMPS and what each offers you —

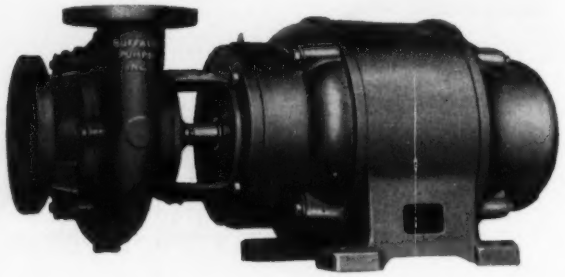


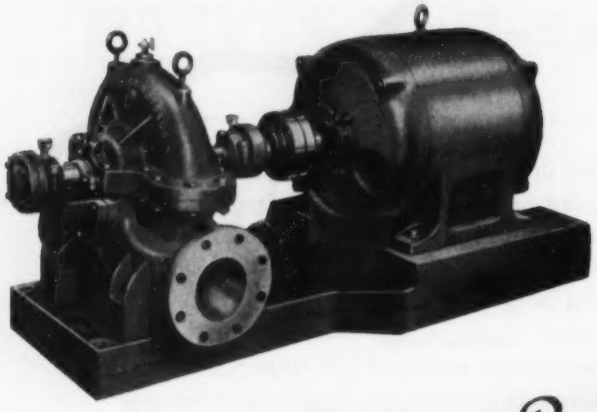
1. DOUBLE SUCTION

This "Buffalo" Pump offers a high degree of efficiency in pumping large volumes of clear water. Available in capacities for 10 to 10,000 gpm at up to 300 ft., these pumps are hydraulically balanced—water entering both sides of the impeller in equal volume and pressure. Bearings on each end of shaft mean extra long wear. Horizontally divided casing makes for extreme accessibility in inspection and servicing. Full details in BULLETIN 955-P.

2. CLOSE-COUPLED

Here is a ruggedly compact pump for those "close-quarters" installations. Pump and motor are rigidly mounted together with impeller on motor shaft, which means *permanent alignment*. "Buffalo" builds these pumps in a variety of alloys for specific liquids, with threaded or flanged inlets and outlets. Pump casing may be rotated, or removed for inspection—an important maintenance factor. WRITE for BULLETIN 975-B.





3. MULTI-STAGE

Each extra stage adds pressure! That's why pumps like these "Buffalo" Type "RR" (2 and 4-stage models) operate efficiently against high pressures (500 psi or 1500 ft. heads). These "Buffalo" Pumps have proven themselves very durable in boiler feed and other clear water installations. Bearing support on both ends of the shaft—rugged, horizontally divided casing—solid, rigid base—all contribute to easy maintenance and long life. For further details, write for Bulletin 980-B.

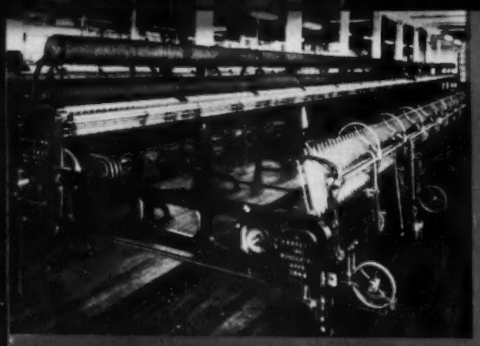
BUFFALO "Buffalo" PUMPS, INC.

184 MORTIMER STREET BUFFALO, N. Y.

Subsidiary of Buffalo Forge Company

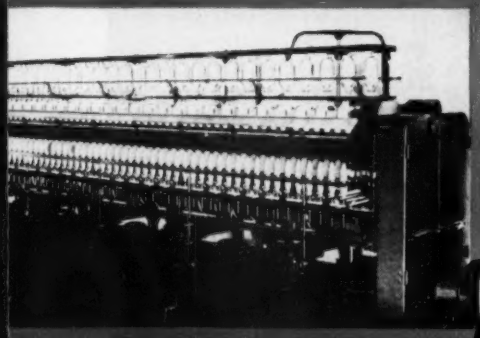
Canada Pumps, Ltd., Kitchener, Ont. Sales Representatives in all Principal Cities

A BETTER CENTRIFUGAL PUMP FOR EVERY LIQUID

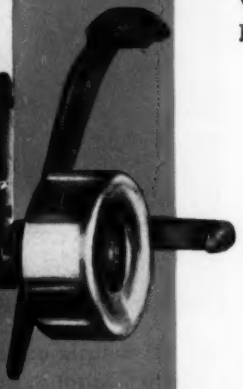


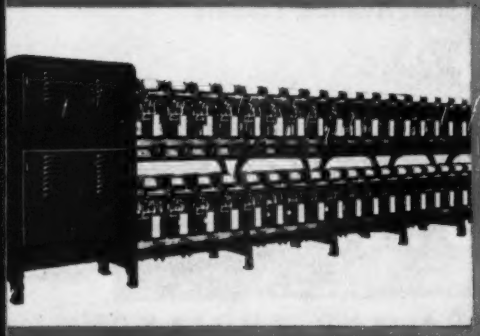
Johnson & Bassett Spinning Mule with Fafnir Ball Bearing equipped Spinning Spindles

Saco-Lowell Spinning Frames with Fafnir Cylinder Units



Whitin F-2 Spinning Frame with Fafnir equipped Tension Pulleys





U. S. Textile Face Drive Double Deck Twister using Fafnir Piya-Seal Ball Bearings

TURNING POINTS

to increased production

in Spinning and Twisting

If you stop to consider the great number of turning points on machines for spinning and twisting, you'll understand how bearings with low co-efficients of friction can make these machines more productive. Comparative tests for example, have shown that a frame equipped with Fafnir ball bearings was ready to doff fully five minutes before the plain bearing frames. In combination with the reduction of lost time for servicing and repairs, this speed-up meant many more productive hours.

In spinning and twisting there are more varieties of Fafnir ball bearings and ball bearing units used than in any other process. They are universally known for their simple, quick installation on all types of machines. Many of these units have the famous Fafnir Wide Inner Ring Ball Bearing with self-locking collar . . . easiest of all to install.

Your most economical way to get increased production may be represented by Fafnir Textile Ball Bearing Units. Why not send for a descriptive catalog? The Fafnir Bearing Company, New Britain, Conn.

A few of the applications incorporating FAFNIR BALL BEARINGS for Spinning and Twisting

- Back Idlers with Fafnir Piya-Seal Ball Bearings
- Cylinder Bearing Replacement Units
- Upstroke Twister Idlers
- Tape Tension Pulleys
- Spindles (spinning and twisting)
- Cam Shafts
- Jack or Intermediate Gear
- Take-up Rolls
- Cross Shafts

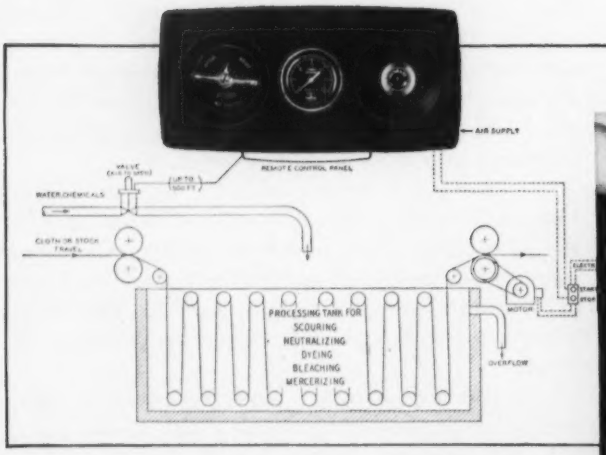
FAFNIR

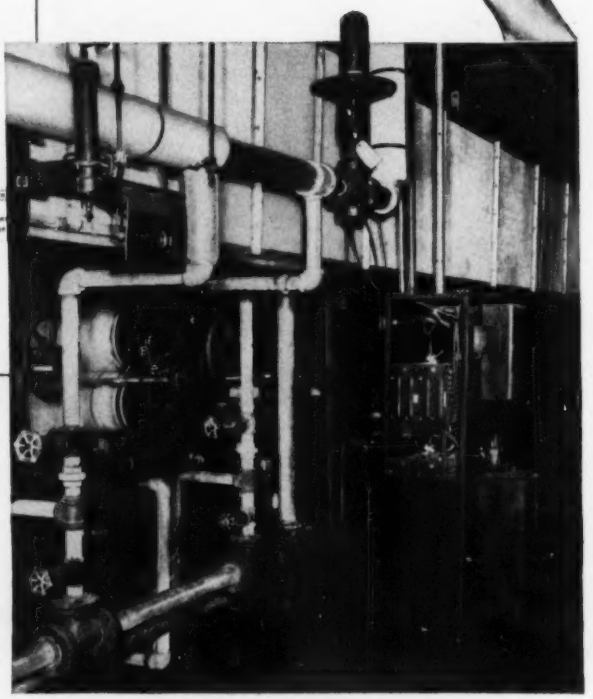
BALL BEARINGS

MOST COMPLETE LINE IN AMERICA

When Supply Valves Are "Out of Reach"...

Stop Careless Processing... Install Foxboro Remote Valve Controls





Washing section of mercerizing range (right) in large southern bleachery showing Foxboro Remote Valve Control Panel (left center) and water control valve (upper right). The diagram above shows a typical hook-up. Selector switch on panel permits automatic cut-off, manual cut-off, or manual valve positioning.

Processing supply valves are often inconveniently located, and therefore neglected, causing non-uniform treatment of cloth . . . and waste of fluids. Foxboro Remote Valve Controls eliminate such problems . . . provide effortless valve adjustment right at the operator's station. Small control panel may be located as far as 500 feet from the valve. In addition, this control system automatically shuts supply valve if process drive motor stops running . . . saves fluids that are otherwise wasted.

Get full details on this efficient, convenient Foxboro Control System. . . . Write for Application Engineering Data Sheet 220-1. The Foxboro Company, 842 Neponset Avenue, Foxboro, Massachusetts, U.S.A.

FOXBORO
REG. U. S. PAT. OFF.

REMOTE VALVE CONTROL SYSTEM

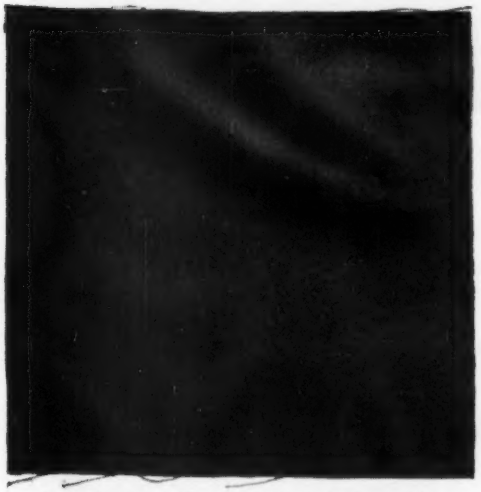
FACTORIES IN THE UNITED STATES, CANADA, AND ENGLAND

marks the spot

that isn't necessary!

Same construction . . .
sized with STYMER LF

Loom-finished fabrics resist water-spotting . . . when sized with new, durable STYMER LF



Typical water-spotting on taffeta (top). Same grade of taffeta sized with Stymer LF (bottom).

Do you weave loom-finished fabrics from solution-dyed acetate? Taffetas, for example? Only to find that conventional sizes water-spot?

If so, ask about Stymer LF.

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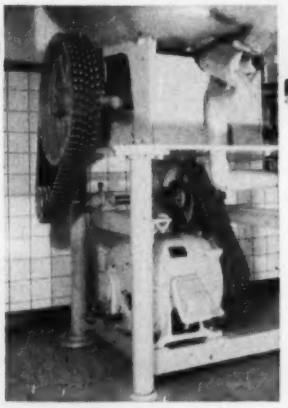

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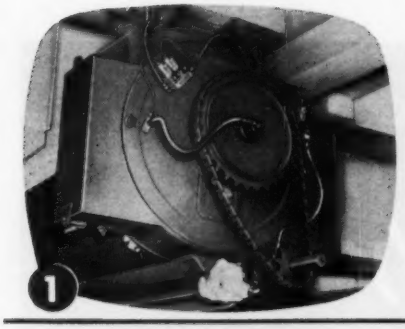

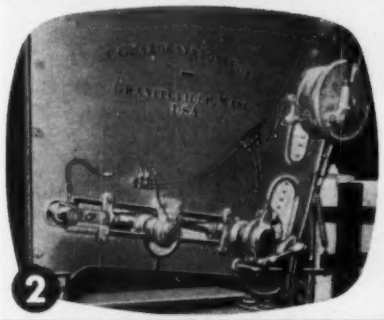

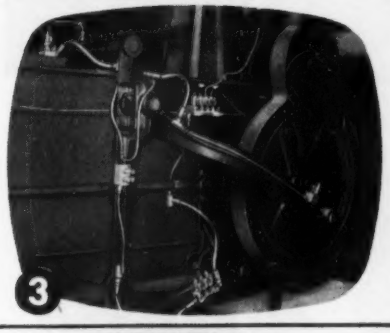

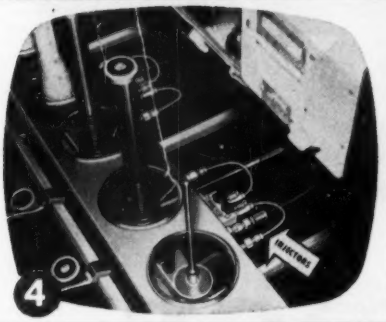

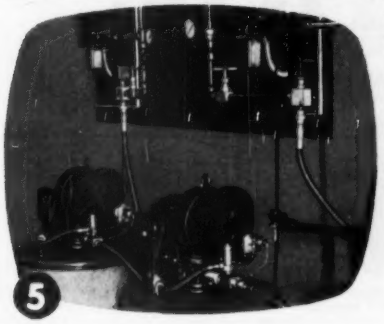

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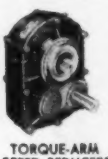

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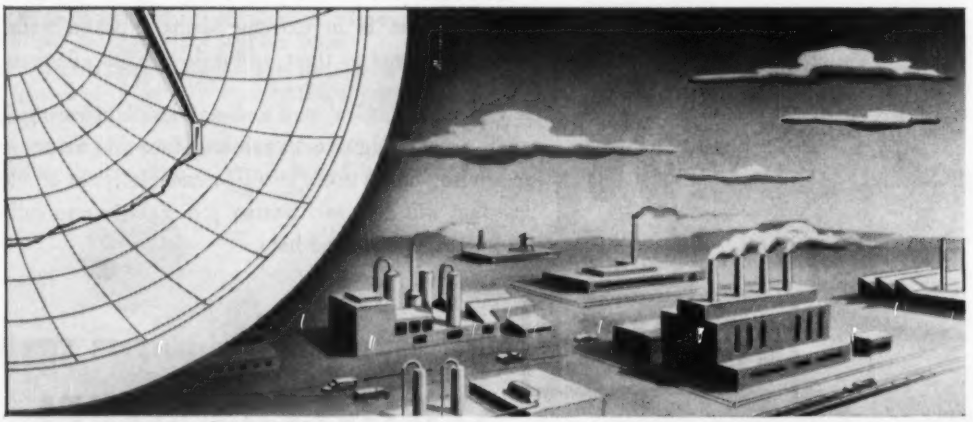

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● **REFERENCE DATA: Write for Instrumentation Data Sheet No. 8.3-1, "Dye Kettle Control System."**

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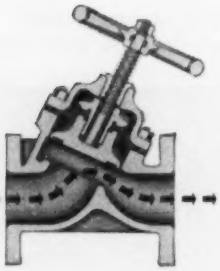

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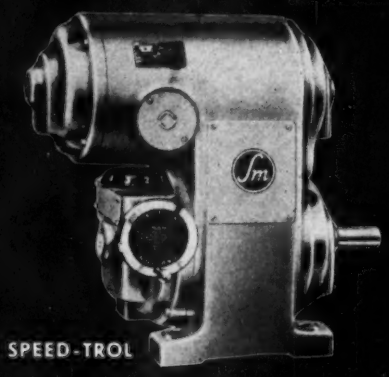
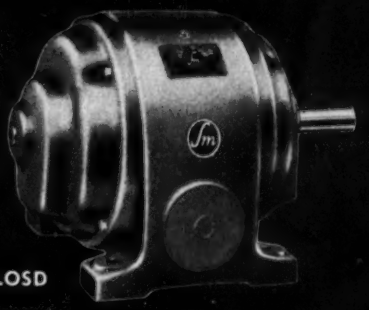


SPEED-TROL

LOW SPEED

SLO-SPEED

CONSTANT NORMAL SPEED



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TEXTILE MACHINE WORKS • READING, PENNA.

PROSPERITY IN THE USA: How Wealthy Are We?

Again, how prosperous *are* the people of the United States?

This is the third of a series of messages devoted to this crucially important and much-debated question. The first two messages dealt with what has been happening to our national income, both in terms of its growth and how it is divided among individuals.

This third message deals with what has been happening to the resources—factories, farms, mines, and equipment of all kinds—out of which income is created. It deals with what economists call our wealth.

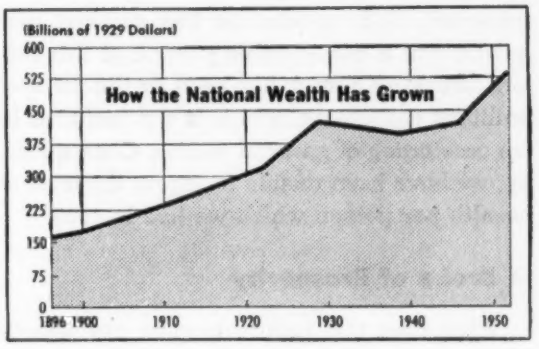
It is possible for a nation to enjoy apparent prosperity for a time by rapidly exhausting its resources. But to sustain prosperity over the long pull a nation must see that its wealth is not dissipated. Hence what is happening to our wealth now is a harbinger of what is going to happen to our prosperity later on.

How Wealth is Measured

It is often asserted that the most vital element in a nation's wealth is its people. There is a lot in this idea. For example, the full value of a country's hospital and surgical equipment depends on its physicians and their skill in handling the equipment.

However, no one has ever devised a satisfactory way to put a value on human beings. So people are omitted from calculations of national wealth. So, too, is military equipment. It is regarded as basically destructive and hence not a real addition to wealth. Otherwise, the wealth of a nation is calculated in terms of the dollar value of its physical resources.

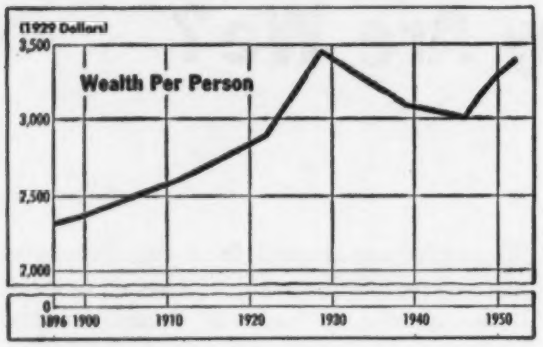
The following chart shows the wealth of the U.S.A. at various intervals during the past 50 years. For the period through 1948 the figures come from a pioneering study by Raymond Goldsmith of the National Bureau of Economic Research, which is widely regarded as the foremost organization in its field. The figures since 1948 are estimated. To remove the effect of price changes, all of the wealth figures are calculated in 1929 prices.



From this chart one fact stands out clearly. It is that since 1929 our national wealth has not been increasing as steadily as it did during

earlier periods. Indeed, in 1946 our total national wealth was actually less than it was in 1929. Only in the last six years have we been able to make any consistent additions.

Even these gains are less impressive when the growth in our population is taken into account, as illustrated by the following chart.



This chart makes it clear that when the nation's wealth is divided by the population, we are slightly worse off per person today than we were in 1929. This is the case in spite of the large additions to our national wealth since 1946.

Depression and war are the two principal reasons we have made no progress in increasing our wealth per person since the 1920s. The depression brought mass unemployment and greatly reduced production which ruled out any increase in wealth. During World War II and again during the post-Korean mobilization program, U.S. production has reached new peaks. But a considerable portion of this record breaking output has been in the form of military equipment, which is not included in an accounting of national wealth. Consequently, we have been unable to regain the level of wealth per person which we had in 1929.

A Brake of Prosperity

What does this failure to raise our wealth per person mean? It means that we have fewer resources with which to create income for each individual. It means that we have made no progress in the crucial task of assuring future increases in prosperity.

As the second editorial in this series demonstrated, we have gone so far in equalizing individual incomes that "the possibilities of increasing the income of the rest of the people by 'soaking the rich' have largely disappeared." From now on the only promising way to increase our individual incomes is to increase our national earning power

During the past four years it has taken about $3.60 of national wealth to yield $1 of income after taxes. This is a low figure for the wealth needed. Prior to World War II there were long periods when it took at least $5 of national wealth to produce $1 of national income. The experts in this field are by no means certain that it will not again take $5 rather than $3.60 of wealth to increase income by $1.

But let us assume that $3.60 of wealth will suffice to provide $1 of income in the years ahead. If by 1960—seven years from now—the income of the average American is to be increased from about $1490, where it stands at present, to $2000, we must add $310 billion to the national wealth. This is nearly three times as much as we have added to our wealth since the end of World War II, seven years ago.

Because we have made large additions to our productive equipment in recent years, fears are frequently expressed that we shall soon be plagued by an excess of such equipment. But the facts about our national wealth do not support this conclusion. They indicate that we still have ahead of us a tremendous job of increasing our resources if the American standard of living is again to resume the steady climb which was interrupted by depression and war.

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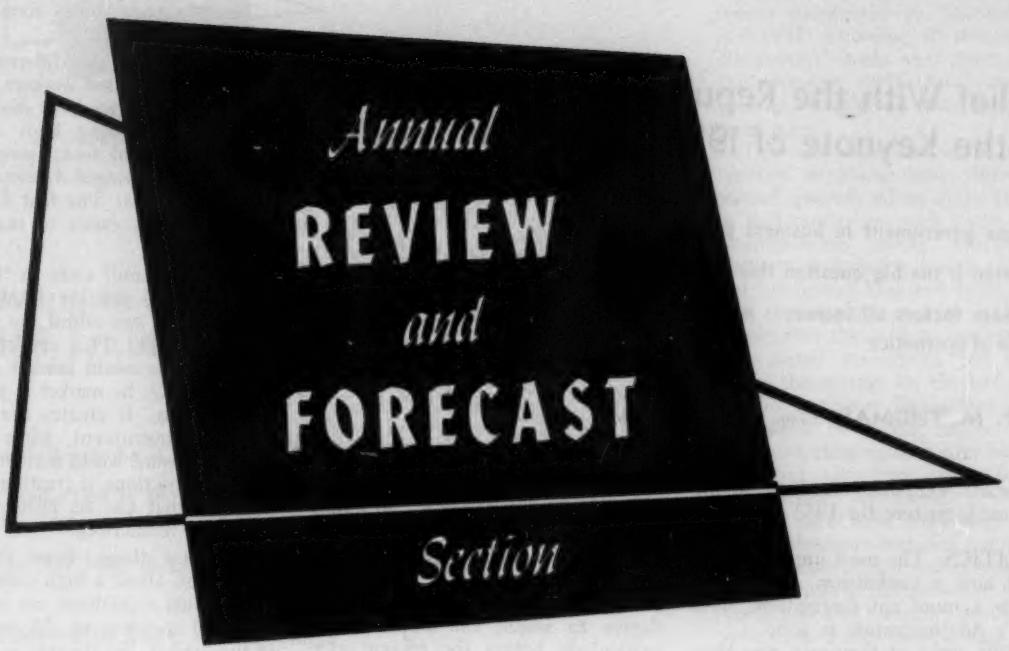
TEXTILE WORLD

Vol. 103 - No. 2 - February, 1953



General Outlook 92
Mill Production 93
Purchases 95
Machinery Developments 96
Fiber Processing 98
Bleaching, Dyeing, and Finishing 100
Research 102
Engineering 103
Personnel Issues 104
Washington Outlook 105
World Textile Picture 106

GENERAL OUTLOOK

Relief With the Republicans Is the Keynote of 1953

- **Less government in business pleases mills**
- **Korea is the big question this year**
- **These factors all increase: minimum wage, mill productivity, population, use of synthetics**

By P. M. THOMAS, Editor, TEXTILE WORLD

SEVERAL FACTORS contribute to the textile picture for 1953 and later.

POLITICS. The most important one right now is confidence. Perhaps relief is a more apt description. Truman's Administration is gone.

Mills, more on their own now than at any time in nearly 20 yr., look forward to operations geared to realistic forces of supply and demand. The feeling is general that the Republicans will hitch their policy to artificial comets—forced crises, controls, playing God with government contracts and labor disputes, etc.—far less than the Democrats did. With fewer minority and other pressure groups to keep in the political fold, they should be able to approach problems more calmly than Truman's opportunism and vengeful psychology permitted.

However, the Republicans' actions, foreign and domestic, have severe limits imposed on them. The U. S. economy is rolling, and world politics is pretty much at the wheel. Don't expect over-all policies to change significantly. It seems safe—and good—to expect the policies to be carried out with less hysteria, more impartiality, and more dignity in high places.

KOREA. What happens in Korea, of course, is the immediate key to powerful swings. Everyone is tired of the bog-down, and certainly it's an impossible situation.

But what will be done about it is anybody's guess.

Action will depend largely on the degree to which the Republicans—particularly before the off-year elections in 1954, when they may lose control of Congress—are willing to pressure Western European countries. To "fight it out" seems to be the only way out of Korea. Western Europe—barely committed in Korea—says "No."

The U. S. can force the issue—and may have to.

BUSINESS. It is estimated in the Mill Production section of this Review and Forecast that mill production in 1952 was 7% down from 1951 and that 1953 may be up slightly from 1952.

Economists, rightly, base their predictions on things that can be measured: statistics of production, consumer income, prices, etc. These statistics cannot take into consideration such forces as Korea, the possible Eisenhower-Taft rift, scare buying, or price resistance by consumers.

About 7% of mill production went to defense in 1952. If Korea remains static or quiets down, a few points probably will be knocked off the 7% this year. If the "fight-it-out" boys carry the day, defense and scare buying could add almost any volume to that 7%.

Unless there is an increase in defense demands and a surge of scare buying, mill business should follow its usual seasonal pattern: down after Christmas, up in the spring, bottom in July, and humming in the latter part of the year.

$1.00-AN-HOUR PAY. A new element enters the short-range picture this year: $1.00-an-hr. minimum pay.

The two worst things about such a high minimum wage are:

1. It levels out pay differentials for skilled and unskilled workers. Just as government policies have discouraged investment, reaching high earnings, and ownership of rental property, so they have discouraged development of skills by workers. The first $1.00 per hr. is infinitely easier to make than the next one.

2. It raises mill costs to the point that the U.S. market is about the only one that can afford the products of U. S. mills. This condition cuts us out of the world market and also makes the U. S. market a plum for foreign mills. It creates the conflict that the government, while actively working toward world markets free of import restrictions, is creating a textile situation that can be protected only by import restrictions.

The best thing, from the mill's standpoint, about a high wage level is that it puts a premium on efficiency. Marginal operators are able to cop less of the market. So the way is open for progressive mills to safely invest in new machinery and equipment.

2% IMPROVEMENT. Mill productivity, population, and the use of synthetics are all increasing at the rate of about 2% a year. In 10 yr. it is expected that:

Fiber consumption will rise from less than 7-billion lb. to 8-billion.

Synthetics will account for about 40%—3,200-million lb.—of that.

U. S. markets potential will increase with a population rise of some 20-million customers.

These increases can be more than taken care of by existing mills if the mills keep up with advancing technology. The three greatest factors in improving productivity are:

1. Steadily improving machinery (reviewed in the Machinery section of this report)

2. Steadily improving engineering (reviewed in the Engineering section)

3. Better use of equipment

There is plenty of evidence that many mills do not know how to get the most out of machinery. Mill productivity could be increased far more than the expected 2% a year if more research were done on manufacturing methods and work methods; if mill men would accept proved facts that are contrary to their opinions; and if competence, wisdom, and sincerity could be more widely applied to worker-management relations.

Upswing in June Ended Textile Doldrums

- **On a full-year basis, 1952 was off 7% from 1951**
- **But production in the second half of last year topped the corresponding 1951 period**
- **Output for 1953 should be 2 to 3% higher than 1952**

By McGraw-Hill Dept. of Economics

IN THE FIRST HALF of 1952 the textile industry continued to pay for overproduction in 1951. Mill output was sharply below 1951 levels. Order backlogs were low and falling. Huge stocks throughout the channels of distribution were gradually being whittled down.

By early June, replacement demand reasserted itself. One by one, the segments of the industry improved, first in new orders and backlogs, then in price, and finally in production. Activity for 1952 fell short of 1951 by about 7%, but this figure conceals real gains made in the closing months.

Output of broad-woven cotton goods in the first three quarters of 1952 totaled 6,967-million linear yards, down 11% from 1951 and 5% below 1950. Taking the July-to-September period alone, however, production was above any other like season except 1950. In the vanguard of the upswing were the print cloths and fine cotton goods. Sheetings and heavy fabrics fared less favorably.

Recovery in rayon was less complete than in cotton. In the first three quarters of 1952, output of rayon and other synthetic broad-woven goods amounted to 1,312-million yd., down 21% from the same 1951 period. Filament-rayon fabrics suffered more than spun rayons. The 100%-filament-rayon and acetate fabrics scored a production loss of 45% in the first six months of 1952 from 1951, while the decline in the 100%-spun rayon and acetate fabrics was only 8%. Although 1952 was below 1951, total rayon-goods production in the third quarter recovered to 14% above 1951.

Synthetics continued to show strong growth. Output of nylon fabrics rose 63%, to 131-million yd. in the first half of 1952. Production of fabrics from other synthetics was up 23%.

Output of woolen and worsted goods in the first half of 1952 was 35% below 1951, but August reports showed recovery to 8% above 1951. Fall output in 1952 was substantially better than the same period in 1951.

1952 IN REVIEW. For the textile industry as a whole, the first half of the year was a period of continuing inventory liquidation. A study prepared by Walter Storm, economist of Chicopee Mills, indicates that total stocks in distribution channels were equal to overproduction of about 1.1 mo. in October, 1951. On this basis, production would have to be 10% less than consumption for 11 mo. to reduce inventories to "normal." By mid-1952, according to this analysis, distributors' stocks were down to half the October, 1951, level—consumption had caught up with and passed production.

The real improvement in the inventory situation came during the second quarter, when sharp cutbacks in mill production took place. Cloth manufacturers' stocks remained far above normal during March and April but fell during May and June. Stocks held by apparel makers and cloth wholesalers declined to moderate levels. Retail inventories fell to 3% below the average for the last 5 yr.

This inventory liquidation was accentuated by falling prices. Retail sales of textiles since Easter had been good, but stores were waiting for price cuts before reordering. Wholesale markets also were expecting further price reductions and did not place a large volume of new orders with mills.

As a result of this period of reduced production and inventory curtailment, consumers stocks became ripe for replenishment and producers' stocks were not overly high.

THE TURNING POINT. The turning point in the textile cycle came in June. Prices of print cloths had bottomed out in mid-May. But the first sign of real improvement was when extremely heavy new orders almost doubled backlogs of print cloths. This improvement was later repeated on a lesser scale in other parts of the industry.

In the third quarter, cotton-cloth manufacturers' output rebounded to about halfway between the lows of the second quarter of this year and the high post-Korean levels. Rayon output picked up 12% from the second quarter, and wool production climbed 10%. In the closing months of the year, production and sales continued high in all divisions, although inventories also showed some increase.

The fall months were also marked by an increased flow of goods toward the ultimate consumer. The October

Trend of General Textile Activity

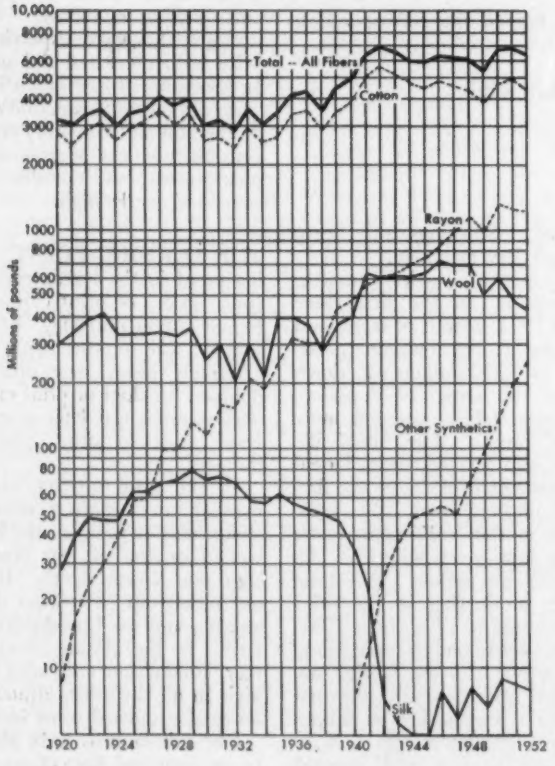
Total consumption (by years previous to 1943; monthly from 1943 on) of all fibers in millions of pounds; horizontal lines show yearly monthly averages

Textile World's Textile Mill Activity Index

(1923-1925 average = 100)

1929	115	1937	125	1945	173
1930	89	1938	103	1946	187
1931	93	1939	132	1947	182
1932	83	1940	142	1948	180
1933	104	1941	188	1949	159
1934	90	1942	198	1950	197
1935	105	1943	189	1951	195
1936	124	1944	177	1952 (est.)	188

U. S. Fiber Consumption



index of department-store sales was 115, compared with 108 a year ago. In October, total retail trade was 6% above 1951 and close to an all-time record.

1953 IN BRIEF. Total textile stocks —including all distribution channels as well as the mills—are still somewhat above normal. Manufacturers' orders have been high, but output also has risen. And at recent levels output may be outrunning consumption.

For this reason, the upswing is likely to be more short-lived than either the 1949 or post-Korean booms. Even with continued high consumer sales, output cannot be sustained at a much higher level than the present. But neither is there any reason to expect the sort of drop we had last year. Production for the industry as a whole is likely to average 2% or 3% higher in 1953 than in 1952.

COTTON. Mill order backlogs at the close of 1952 were larger than a year ago, and stocks were about 40% smaller. This condition points toward moderately high operation through the first quarter of 1953. Operations—which as a percent of capacity (80-hr. week) averaged 144 in the 11 mo. following Korea; 122 from August, 1951, through June, 1952; and 135 in the closing months of 1952—will probably remain at 130 to 135 in the first quarter of 1953.

At this rate of production, stocks are likely to become burdensome before long. And prices are likely to fall. Converters and cutters, as well as wholesalers, have been purchasing very conservatively. All of these factors point to a reduction in yardage in the second quarter. But the dip may be only temporary, lasting until seasonal strength reappears in the third and fourth quarters. Output for the year as a whole will probably average close to 1952. Military takings are expected to continue at about 8% of the total.

SYNTHETICS. Two divergent trends marked the closing months of 1952. Filament-weavers' stocks declined from an estimated 95-million lb. a year ago to 62-million lb. in the autumn of 1952. At the same time, weavers of spun rayon increased their inventories from an estimated 58-million lb. of goods to 71-million lb. This increase represents a reversal of the situation of late 1951 and early 1952, when the spun rayons enjoyed a distinct advantage. On the whole, rayon mills entered 1953 in much better shape than 1952. Weekly hours per loom had stepped up to 94 by the third quarter of 1952, compared with 87 in the second quarter and only 84 hr. per loom per week in the third quarter of 1951.

Outlook is for a good first quarter of 1953—some readjustment in the second quarter to be followed by seasonal strength in the third and fourth quarters. Production for the year as a whole may well be 7 to 8% above 1952.

Blends and mixtures of rayon with cotton, wool, and other synthetics were running 65% above a year ago; combination spun and filament-rayon fabrics were up 50%; pile, upholstery and drapery fabrics were 33% above 1951. These trends are expected to continue. Rayon tire cord experienced no slump at all in 1952, and output is expected to be fully demanded as production capacity increases.

WOOL: Wool consumption continued poor in 1952, although definite signs of improvement had taken place by fall. The price of wool was much more competitive with other fibers in 1952, being under $2.00 per lb. at the end of the year compared with almost $4.00 a year earlier. Consumption of apparel wool was about 10% below 1951 in the first two-thirds of the year, continuing a downward trend (1952 was 10% below 1951). In the men's clothing field, synthetics made further inroads. Regular-weight worsted suits fell from 98% of the market in 1950 to 93% in 1951 and 91% in 1952. Wool in summer-weight suits declined from 49% to 35% to 27%.

Carpet-wool consumption in 1952 fell 20% below 1951, 60% below 1950. This enormous drop has been caused by the increasing popularity of both cotton and rayon in the rug trade. The inroads of rayon as a percent of total fibers consumed in the manufacture of carpet yarns was checked in 1952, however, as wool increased from 77% to 83% of the combined total.

Moderate stocks, coupled with more favorable prices, should combine to halt the drop in use of wool.

Mills Again Buy Heavy In Equipment and Supplies

- **1952 mill purchases off only slightly from '51's all-time high**
- **Knitting machinery leads the way with 24% increase**
- **Manufacturers look for a new high in '53**

By P. M. THOMAS, Editor, TEXTILE WORLD

MILLS BOUGHT MORE textile machinery, auxiliary equipment, and supplies in 1952 than in any year in history except 1951.

The pattern of 1951 was repeated, but in reverse. In 1951, the first half of the year was brisk and the last half slow. In '52, the last-half slump of '51 carried over through June. But in July, '52, sales started rolling and came just short of overtaking the all-time high of '51.

One major company reporting in TEXTILE WORLD's annual survey of sales to mills turned in this record: Sales through August were down 25% from the corresponding 8 mo. in 1951, but the Sept.-Dec. period so far outstripped that period in '51 that sales for the year were 15% above '51.

The TEXTILE WORLD index of dollar volume of mill purchases of machinery, equipment, and supplies for 1952 is 428—down 5 from 1951. Comparison with recent years is:

(1929 = 100)
1952 — 428
1951 — 433
1950 — 399
1949 — 367
1948 — 394

As in 1951, sales of some types of machinery were up, others down.

Knitting machinery went to town. Purchases rose 24% over 1951. One of the major machinery manufacturers reported a thumping 100% increase. Only one company reported a decrease.

Purchases of spinning and weaving machinery were down 14%—the biggest loss shown by any type of machinery. This figure still represents the second-best year for spinning and weaving equipment. Purchases in 1950 were 14% less than in 1949; in 1951—the all-time high—they were 23% above 1950.

Finishing machinery, auxiliary equipment (motors, conveyors, control instruments, air conditioning, etc.), and supplies were only slightly down from 1951. Their decrease percentages were:

Finishing machinery	— 2.6 (%)
Auxiliary equipment	— 2.6
Supplies	— 3.0

1953 INDICATORS. Fewer machinery, equipment, and supplies manufacturers were prepared to forecast sales to mills in 1953 than to indicate their 1952 sales. However, enough of them, pointing out that it was mostly a "guess," gave their expectations for 1953 to show that the industry is quite confident.

On the basis of sales forecasts, the TEXTILE WORLD index for 1953 will be 436. This dollar-sales-index figure is 8 above the 1952 figure and 3 above

the all-time high of 1951. Highest gains are expected by auxiliary-equipment manufacturers and second highest by manufacturers of spinning and weaving machinery.

Estimates in other sections of this Review and Forecast indicate that these sales predictions could be fulfilled. Mill production for the year is expected to rise 2 to 3%; and with less government control and more confidence in the National Administration and the future course of business, mills can invest with more confidence. With higher minimum wages, the incentive for modernization will be greater.

So 1953 could be another record breaker.

However, a look at the broader capital-expenditures picture has a somewhat sobering effect. The McGraw-Hill Economics Dept., which regularly keeps its finger on the pulse of business, cautions that two forces will determine capital expenditures:

1. The pressure of rising costs
2. The level of consumer spending

If mill costs continue to rise and prices have to drop to move goods, mills won't have much to spend.

If consumers shy away from the counters in expectation of price cuts, mills will have to curtail production and probably squeeze prices. Result: less money for capital expenditures.

The U. S. Dept. of Commerce forecasts, on the basis of a survey, that all business capital expenditures will not be far below 1952. Expenditures by all manufacturing firms may be down 8%. Textile-mill expenditures may be down 15%.

These figures are based on present plans. Plans will be revised up or down according to actual business activity.

An important sidelight pointed out by the McGraw-Hill Economics Dept. is that the biggest mills are keeping up their capital expenditures and smaller mills are cutting down.

If this trend continues, the small mills will find themselves in a completely noncompetitive position.

SIDELIGHTS. The TEXTILE WORLD survey revealed several interesting sidelights.

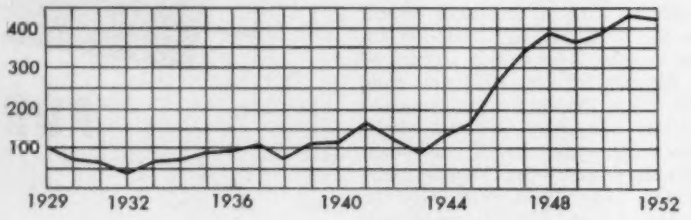
1. In general, the machinery and supplies manufacturers in each classification that came up with new products showed the best sales record. Several companies pointed out that their level of sales was possible only because of new products. Several also base much of their 1953 confidence on new products.

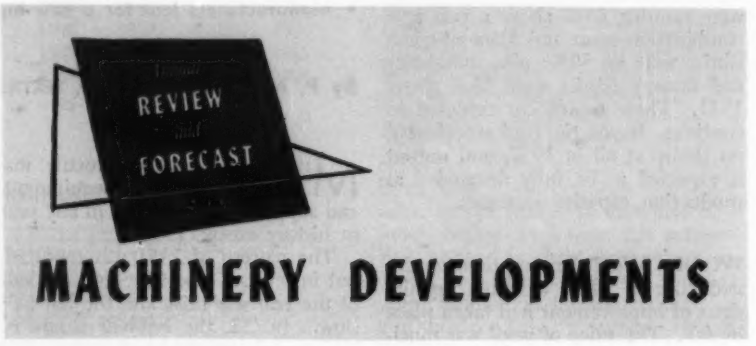
2. Materials-handling-equipment purchases showed remarkable increases in 1952. Firms dealing in this type of equipment are, almost without exception, looking forward to still greater gains in '53.

3. Chemical suppliers, in general, had a slight drop in dollar sales in '52, but the lower sales netted higher profits. While volume dropped something like 5%, better prices held profits about the same in some cases and raised them as much as 10% in other cases.

Purchases of Equipment and Supplies by Textile Mills

Based on Dollar Volume in TW's Index, 1929=100





Major Machine Advancements Hit the Mills in 1952

Processing trend continues toward

- **Larger packages**
- **Higher speeds**
- **Improved controls**
- **More and more blending**

Machinery developments to watch in 1953 include improvements in

- **Stock mixing and blending**
- **Warp knitting**
- **Yarn-processing techniques**
- **Winding**
- **Continuous dyeing and finishing**

By RICHARD C. SCOTT, New York Editor, TEXTILE WORLD

DURING 1952, the trend in textile manufacturing was to larger packages, improved quality controls, increased speeds, and more and more blending of fibers and manufacturing systems. Machinery manufacturers

provided much heavy equipment and many precision instruments to help mills keep up with this trend.

LARGER PACKAGES. Saco-Lowell Shops made available its SG-1 Gwaltney spinning frame early in the year. This frame can produce a yarn package holding up to 1 lb. of yarn. It has a 11¼-in. traverse and is offered in rings up to 3 in. for coarse yarn numbers. Fine yarns are also spinnable. By the use of node rings that limit the size of the balloon, more yarn can be spun on the 4-in.- gauge frame than would otherwise be possible.

Whitin Machine Works has an installation of Model F-3 large-package spinning frames at Beaumont Mills, Spartanburg, S. C. They have been running on filling and will produce a package weighing almost a pound. A 12-in. bobbin is used. Traverse is 11 in., frame gauge 4 in., and a 2¾-in. ring has been used up to now.

The trend to larger processing packages has meant a lot of little mill changes also. Card-room cans, for example, are now available up to 15½ in. in diameter. Creels have had to be changed on warpers to take the larger size winding packages that mills find economical to make. Beam-head diameters are larger, up to 36 in. in some cases. The trend has been to try to pack as much yarn onto filling bobbins as the shuttle can take.

The Bradshaw adjustable-gauge "Flexal" twister is another development in larger packages that will bear watching.

Larger rolls are handled mechanically in cloth rooms and finishing plants to make necessary a minimum of human handling and stopping of processes. So the trend continues.

IMPROVED CONTROLS. Pneumastop, a development that combines the suction principles of Pneumafil for spinning frames with an electric-eye stop motion, became available from Pneumafil Corp. this year as a quality-control system for roving frames. Where a roving end comes down, stock delivered from the front rolls is sucked inside a tube into a duct. Lint passes an electric eye and breaks the light beam; thus the frame is stopped.

Eliminated by the device are "snowstorms" caused by many ends being knocked down together, slubs, gouts, doublings, and the unevenness of tardily pieced-up bobbins.

Improved processing is obtainable now also with such new developments as improved spindles, tapes, bobbins, drafting units, guides, a top-roll weight-measuring device, precise viscometric measurement of warp size, hot-air drying of slashed warps, automatic recorders and regulators, and static eliminators.

By means of electrical and electronic devices brought out in 1952, a fiber, yarn, fabric, or dye can be tested for quality in many more ways than it could be a year ago. The reader should note such developments under the instruments and accessories listed below.

HIGHER SPEEDS. Almost all the new equipment made available in 1952 was described as being able to turn out more production than ever before. Specific speed changes, for example, were made in the new Textile Machine Works 60-gauge full-fashioned Reading machine, called the 100 because it knits now at 100 courses per min. About 600 parts of the machine were redesigned to make this speed increase possible.

The Karl Lieberknecht new 32-section 66-gauge machine knits enough faster than the 60-gauge machine to produce approximately the same number of finer stockings a day as the 60-gauge unit.

Beautiful Bryans, Inc., developed a full-fashioned knitting machine that knits at 160 courses per min.

MORE BLENDING. Improved automatic blending systems for raw cotton, wool, synthetic fibers, and combinations thereof in various percentages have been worked out by several blending-equipment manufacturers.

Hoppers, weighing pans, conveyors, fans, blend boxes, and storage bins are used in various ways and combinations to meet individual mill requirements.

More and better blending is now possible also on 1952 drawing frames and long-draft roving frames that are rapidly being developed.

FOR 1953 AND BEYOND? Machinery manufacturers are preparing for the increased use of synthetic fibers and blends.

- A combination twister-coner is a new development that should be ready before too long from Universal Winding Co. On such a machine, twisting and coning of synthetic yarns will be accomplished in one operation.
- Foster Machine Works has in the works an automatic spun-yarn cone winder for warp and knitting cones, as well as a longer-term development for taking up no-twist yarn directly from spinning frames.
- Warp-knitting equipment (of the tricot type especially) is already forcing itself into the thinking of many straight-line textile-mill executives. Warp-knit fabrics have a tremendous production potential and the consumer demand is still strong, although the demand is well on its way toward being met. There are half a dozen machinery firms now in this field.
- Shuttleless high-speed weaving is evidently "just around the corner." Prototypes have been developed that use either positively driven needle-like fingers that replace the conventional shuttle or a system of air pressure and suction to blow and pull the pick across. Norrkoping Rayon Bolaget in Sweden, Société Sobretex in France, an Italian machinery manufacturer, and Disco Industries, Inc. [TW, Jan., '53, p. 110] are working in this field.
- Under continued development at Universal Winding Co. is the Unifil bobbin-winding attachment for looms. This device was first shown at the Atlantic City textile-machinery show in 1950. When brought to a commercial basis, Unifil should cut winding costs tremendously.
- New dryers, curing ranges, and garnetts for cotton felt and synthetic fibers are to be available from James Hunter Machine Co. in the next year or so. Other machinery shops have plans in many other lines, all tending toward the same goal of better, faster, controlled processing.

Listed below are only a few of the new machines, instruments, and accessories made available in the U. S. during the past year and described in TEXTILE WORLD in the issue and on the page cited.

Equipment Highlights of 1952

Yarn Manufacturing

SG-1 spinning frame, Saco-Lowell Shops, April, p. 120
Pneumastop, Pneumafil Corp., Sept., p. 106
Adjustable-gauge twister, J. A. Bradshaw, Dec., p. 151
All-fiber blend box, J. J. Rieter & Co., July, p. 146
Superdraft roving frame, Whitin Machine Works, Nov., p. 171
Direct-spinning machine, Josef Pfenningsberg & Co., Nov., p. 182

Warp Preparation and Weaving

Radial quiller, Abbott Machine Co., Inc., Nov., p. 137
Unirail uptwister, Universal Winding Co., June, p. 155
Gentle-Air slasher dryer, Bachmann Uxbridge Worsted Corp., Sept., p. 119
Mixed-filling loom, Draper Corp., Nov., p. 142
All-purpose loom, Crompton & Knowles Loom Works, Jan., '53, p. 145
Air-Dri slasher, West Point Foundry & Machine Co., Nov., p. 141
Large-package warper beams, Allen Beam Co., May, p. 139
Staubli dobby, H. J. Theiler Corp., June, p. 162
Gas slasher dryer, Southern Regional Research Laboratory, Aug., p. 143
Warp-size pressure cooker, Ruti Machine Works, Oct., p. 158
Electronic warper, Crowther Ltd., Dec., p. 158

Knitting

Long-loop terry-stripe knitter, Supreme Knitting Machine Co., Inc., July, p. 135
Open-stitch knitter, Supreme Knitting Machine Co., Inc., April, p. 162
Selective-striper knitter, H. Brinton Co., June, p. 109

(Continued on next page)

Revolving-cylinder rib knitter, H. Brinton Co., March, p. 171
Pull-over interlock-body knitter, H. Brinton Co., June, p. 110
All-purpose raschel knitter, Robert Reiner, Inc., June, p. 110
Tandem flat links-and-links machine, Queens Machine Co., p. 110
Circular links-and-links machine, Jacquard Knitting Machine Co., Inc., June, p. 109
Fancy-mitten rib knitter, Fidelity Machine Co., Inc., July, p. 138
High-speed full-fashioned knitter, Beautiful Bryans, Inc., Oct., p. 110
Reading 100 full-fashioned knitter, Textile Machine Works, Nov., p. 171
Rib-top anklet knitter, Hemphill Co., Nov., p. 174
High-speed raschel machine, Robert Reiner, Inc., May, p. 146
Circular warp knitter, Erick-Gross Corp., Aug., p. 144
66-gauge full-fashioned machine, Karl Lieberknecht, Inc., Sept., p. 124

Dyeing and Finishing

Continuous rope washer, Proctor & Schwartz, Inc., Nov., p. 147
Barotor, E. I. du Pont de Nemours & Co., Inc., Oct., p. 107
Loop ager, Proctor & Schwartz, Inc., Oct., p. 109
Bond dyeing machine, Hussong-Walker-Davis Co., Dec., p. 123
Two-reel dye beck, Rodney Hunt Machine Co., March, p. 176
Steam baker, Riggs & Lombard, Inc., March, p. 182
Open-width dye kettle, James Hunter Machine Co., April, p. 161
Verticle singer, Cook-P&N Machine Co., April, p. 168
Rotary knit-goods dyeing machine, Gaston County Dyeing Machine Co., May, p. 139
60-in. semi-decater, David Gessner Co., June, p. 156
Carpet piece-dyeing kettle, Riggs & Lombard, Inc., June, p. 160
V-bar dye reel, James Hunter Machine Co., July, p. 136
Knit-goods dyeing machine, Burlington Engineering Co., Inc., July, p. 146
Convertible padder, Cook-P&N Machine Co., Inc., Aug., p. 146
Carpet piece-dyeing kettle, Rodney Hunt Machine Co., Nov., p. 174
Steverlynck dye machine, Groeninghe Ververij, Dec., p. 158

Instruments

Color-matching lights, Macbeth Daylighting Corp., March, p. 178
Inertialess weighing system, Scott Testers, Inc., May, p. 140
360-cycle fluorescent lighting, General Electric Co., May, p. 140
Warmth tester, Southern Regional Research Laboratory, June, p. 164
Stelometer, U. S. Dept. of Agriculture, Oct., p. 158
Universal tensile tester, G. F. Bush Associates, Dec., p. 154
Yarn strength-elongation tester, Stellite American Corp., Dec., p. 154
Lap tester, Uster Corp., Nov., p. 151
Semiautomatic Fibrograph, Uster Corp., Nov., p. 151
Pacific Integrator, Anderson Machine Shop, Inc., Nov., p. 151

Accessories

—Yarn manufacturing

Uniflex uptwister spindle, Universal Winding Co., June, p. 166
Roving strripper, C. C. Sumner, Feb., p. 178
Card fancy cover, Whitin Machine Works, March, p. 176
Overdrive spinning tape, A. K. Landau, March, p. 274
False-bottom doffing truck, W. T. Lane & Bros., April, p. 162
Wool-card compensator, Bigelow-Sanford Carpet Co., June, p. 260
Detachable long-draft aprons, Macdonald & Sons, July, p. 138
Plastic filling bobbin, American Paper Tube Co., July, p. 146
Duo-Roth drafting units, Saco-Lowell Shops, Sept., p. 119
New Era filling spindle, Saco-Lowell Shops, Sept., p. 120
FS-3 and FS-3W drafting systems, Saco-Lowell Shops, Sept., p. 120
Variable-speed drive, Dodge Mfg. Corp., Oct., p. 155
Needle-bearing top rolls, Precision Rolls Co., Nov., p. 176
Lickerin control rolls, Saco-Lowell Shops, Dec., p. 152
Roller-bearing spindle, Gubelin International Corp., Dec., p. 156
Draw-frame evener motion, Ideal Industries, Inc., Nov., p. 138
Pendelarm top rolls, Stellite American Corp., Nov., p. 139

—Warp preparation and weaving

Slasher beam brake, Cocker Machine & Foundry Co., Feb., p. 175
Quill polisher and degreaser, Glenwood Machinery Associates, Inc., March, p. 172
Shuttle-trueing machine, H. J. Theiler Corp., April, p. 168
Harness regulators, H. J. Theiler Corp., April, p. 170
Conditioning machine, Mona Industries, May, p. 142
AlSiMag guides, American Lava Corp., May, p. 146, and Aug., p. 154
Hi-Du-Lignum picker sticks, U S Bobbin & Shuttle Co. and Crompton & Knowles Loom Works, July, p. 140
Winding-density gauge, Shore Instrument & Mfg. Co., Aug., p. 148
Soft-package winding attachment, Universal Winding Co., Sept., p. 124
Large-package vertical creel, Edward J. McBride Co., Nov., p. 180
Armotek picker stick, Emmons Loom Harness Co., Dec., p. 162
Surco yarn-conditioning system, Kearny Mfg. Co., Inc., Nov., p. 136
Doffmeter, Durant Mfg. Co., Nov., p. 163

—Knitting

Mechanical tricot beam let-off, Robert Reiner, Inc., March, p. 180
Electronic tricot beam let-off, Westinghouse Electric Corp., April, p. 164

—Dyeing and finishing

Surface-temperature-measuring head, The Foxboro Co., June, p. 260
Selvage turners, Guider Roll & Service Co., June, p. 260
Pocket-size pH meter, Analytical Measurements, Inc., June, p. 262
Tricot-fabric static eliminator, Cutting Room Appliances Corp., July, p. 140
Fabric-temperature measurer, Minneapolis-Honeywell Regulator Co., Sept., p. 126
Tensionless circular-knit-finishing calender attachment, Tubular Textile Machine Corp., Nov., p. 176
Dynalog redox recorder, The Foxboro Co., Nov., p. 178
Quetsch-roll pressure control, Taylor Instrument Cos., Nov., p. 147

New Fibers and Changed Fibers Call for Revised Thinking

- **Whether you process cotton, wool, synthetics, or blends, knowledge of the handling of all fibers is an important asset to you if you want to keep your mill among the leaders**
- **Here are some of the highlights and trends in all the fiber-processing systems**

By JAMES H. KENNEDY, Southern Editor, TEXTILE WORLD

CAN YOU PREDICT how long you'll be working with the same fibers you are using today? Or are you sure that you'll be using even the same type of fiber next year?

Many successful mills have been operating for years with the same fiber, and chances are that many will continue. But new cotton fibers are being developed constantly, methods of growing and harvesting cotton are changing, wool growers are changing techniques to produce better fibers, makers of synthetic fibers are bringing out new fibers and new finishes. The textile industry is in such a state of flux, is moving so rapidly, that the mill man who is familiar with processing trends on all systems is the man who will stay in front in both quality and profits.

The following outline combines a review of some of the important processing developments of 1952 with a look into the future.

OPENING. Gentler action in opening is becoming widely accepted. Most of the newer fibers don't need opening because they're bulky or because they've been opened before being baled, and some mills are finding out that the natural fibers don't need as rough treatment as they've been getting for years.

Special openers and cleaners re-

cently developed have a definite place in the above program, both as additions to present equipment being run more slowly or gently and as replacements for certain machines.

Machine-picked cottons present problems that call for better cleaning, but not by more beating. Air currents have found and will continue to find application here.

BLENDING. More accurate blending is becoming essential. And accuracy in blending means elimination of the human element. That's why automatic blending devices are finding favor.

Once you've got an accurate blend, you've got to preserve it. Some of the newer fibers are lighter or heavier than others, and transporting them by air tends to change the blend. Ceiling condensers help to solve this problem.

And blending continues in later processes, too. In the worsted system, for instance, there is still no agreement on the merits of carding and pin drafting vs. recombing.

How do you measure blend uniformity? 1953 may bring a simple method and an accepted way of expressing it. The need is acute.

PICKING. The emphasis continues to be on less beating and automatic operation. Lap changing and lap handling are getting a lot of attention, but more improvements must come. There is still too much unevenness in the first and last yards of a lap. Automatic doffing devices will help; and weighing, racking, and conveying systems will be more widely accepted.

CARDING. Perhaps the most controversial subject to carders in 1952 was the study unveiled by N. C. State in connection with nep reduction. Many mills tried to apply just some of the ideas and weren't successful. Other mills tried every way they could but without success. The scales seem to be tilted in favor of the study; but even if they weren't, the stimulus that this report gave to carders made the report a success.

Static still troubles carders, particularly with synthetics and blends. Special finishes, eliminators, and moisture continue to vie for acceptance as "the answer," but no universal answer has been found.

Larger card cans continue to be accepted, and more emphasis is now laid on the method of changeover than on the decision to change.

The elimination of carding has progressed in worsted-system processing of synthetics. New machinery for this system will be announced this year.

COMBING. Blends and new synthetics had a marked effect on combing in the worsted system last year. Fiber lubrication is the key to successful Noble combing. The French comb is finding new application in short-cut systems of worsted-yarn manufacture.

DRAWING. The elimination of drawing has been accepted by at least one well-known cotton mill, but it is difficult to see this instance as initiating a trend. The installation has aroused a lot of interest, and the mill certainly deserves credit for pioneering, but the rest of the industry has been content to adopt a wait-and-see attitude.

Trends elsewhere in drawing point to a withdrawal from some extreme speeds and from many ends up. Spinning efficiency and quality are said to have suffered in some cases.

Some mills prefer metallic rolls; others are going back to common rolls. And a few mills are going back to two-process drawing after a spurt to one-process.

A draw frame that can handle any length of fiber may be the machinery industry's answer to the mill that demands flexibility. Whitin's Roto-Drafter, details of which are soon to be released, seems to be a step in the right direction.

What of the future? Maybe higher drawing speeds will be practicable and possible with a positive frame drive not limited by gearing. And better bearing surfaces in the coiler mechanism may lead to higher speeds.

ROVING. Stop motions, built-in gilling frames, and larger packages were some of the 1952 highlights in the roving operation.

There is not enough data available yet for us to know whether or not Pneumastop was a milepost for roving frames, but indications are in the affirmative.

Building gilling into roving frames is an effort toward versatility in blends of long-staple synthetics.

Larger packages, particularly in coarser numbers, are connected with the new spinning developments.

SPINNING. Large packages dominated all spinning trends in 1952. Both of the major manufacturers introduced new frames, and success has been reported with both frames.

And greater acceptance was given last year to "fringe" spinning improvements—automatic cleaning, top and bottom; umbrella creels; and changeovers.

Changeovers that give larger packages and incorporate new drafting elements and weighting systems cost much less than brand-new large-package frames, and a great many spindles were so modernized last year.

The spindle has not been eliminated in spinning yet, but there is still talk that spinning directly onto a cheese is not impossible.

TWISTING AND WINDING. Elimination of doubling has been accepted in some mills. Others are looking into yarn conditioning on the twister. A large-package spooler to follow large-package spinning has not yet been announced by Barber-Colman. Abbott, however, is said to be developing a special package for their winders to fill the need of large-package spinners. Universal's Auto-Coner is now being delivered to mills, and progress reports on this machine should be available soon.

WARPING AND SLASHING. Several mills are now warping at speeds higher than the maximums set by the equipment manufacturers. New creels and improved stop motions are receiving considerable attention.

Slashing is still one of the phases of textile manufacturing in which art has not been completely replaced by science. But science continues to make inroads.

Improvements in instrumentation have been made, particularly in filament work. Moisture control and its adjuncts received wider acceptance in 1952 and will probably be regarded as essential in most mills before long.

Partly modified starches are being tried in homogenizers. A highly rinsable homogenizer size is being used by some mills for spuns and blends. (A hot-water wash in a continuous range will remove the size.) And some mills, particularly on coarse goods, are boiling size for a short time before homogenization. In general, homogenization, after a sag in 1951, gained wider acceptance in 1952.

Hot-air drying is finding wider use also. There is a lot of interest in the slasher that Saco-Lowell is working on, and proponents of the wet-split theory are anxiously awaiting production results of the wet-split air-dry combination.

WEAVING. Last year's slump in cloth sales put weave-room men to thinking about improved machinery and loomfixer training.

Most mills are thinking of replacing their looms or of improving their present ones. Few mills can be found that don't have a group of new looms in production or on test.

Weave-room men are of one opinion that the driving mechanism needs to be improved. Many mills have added new drives to their old looms

and have been able to increase the speed of the looms and still run at the same efficiency.

Along with improved machinery, supervisors see the need for improved methods in maintenance of the machinery. For example, all 14 of the mills that reported on operator training at the fall meeting of Georgia TOE said that they were training loomfixers by some method.

Mills that run constantly during the next few years must have good looms, and those looms must be kept in good mechanical condition.

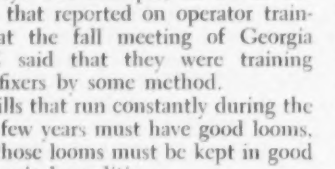
KNITTING. Full-fashioned mills are installing 60- and 66-gauge machines, and the trend is toward even finer gauges. The new 12-den. yarn announced by Du Pont will hasten the development of the 72-gauge machine.

Tricot knitters are finding the market for jersey cloth more difficult and are swinging over to fancy numbers. Interest has been increasing in Orlon yarn. More stable cloths will be made, especially for use in men's shirtings.

Duplan's Helanca yarn has helped the half-hose knitters over a difficult period, and other new developments that do not require large expenditures will create good markets during the coming year.

Outerwear knitters have shown some originality in their designs and styles. There will be a trend towards even greater originality in design. Knitted swimwear fabrics are due for a comeback.

Synthetic blends will maintain a steady demand, and more synthetic yarns will be consumed by the underwear trade.



BLEACHING, DYEING, AND FINISHING

New Machines, Processes, and Products Spark Finishing Progress

- **Faced with stiff competition and consumer demand for synthetics, cotton and wool people rolled with the punch and came up with new finishes, new blends, and new cost-cutting processes**
- **The trend continues toward blending synthetic and regenerated fibers with wool, silk, and cotton to bring out the best physical characteristics of each**

By GEORGE M. MOISSON, Assistant Editor, TEXTILE WORLD

AT THE AATCC ANNUAL MEETING in Boston last November a number of new products were shown, products that grew out of the immediate needs of dyers and finishers—new selective colors for Dacron dyed in the presence of wool, new neutral-dyeing wool colors, optical bleaches, nonyellowing softeners, antistatic agents, and dyeing assistants. The needs of the industry have stimulated tremendous efforts by the chemical and dyestuff people in their bid for the new business.

New processes and new machines were prominent last year—Du Pont's Barotor, Bond's dyeing machine, General Dyestuff's Genray process, TRD's tricot presetting-dyeing system, high-pressure dyeing techniques, and several others aimed at better, faster, and more efficient processing.

At the National Cotton Council's Chemical Finishing Conference in Washington, D. C., last September, a wealth of information was released about research in process—acetylation, aminization, decrystallizing, flameproofing, chemical bonding of cotton with resins, and others. Some of these projects are still long-range, as far as the consumer is concerned, but enough was told to convince the skeptics that cotton is not likely to be a forgotten fiber.

In finishing, the multiplicity of blends is complicating things. Such factors as dye migration, sublimation, heat degradation, and yellowing effect of lubricants and antistatic agents, and the effect of resin treatments on various fibers in the blends must be considered when the finisher goes to work. So far, because of the proprietary nature of these blended fabrics, technology and techniques are not common property.

Cotton Streamlines To Meet Competition

By C. NORRIS RABOLD
Consulting Editor, TEXTILE WORLD

THE TREND TOWARD the use of continuous ranges for the preparation, finishing, and dyeing of cotton piece goods continues. Practically all the larger cotton finishers now have one or more continuous-preparation ranges in their bleach houses. Finishers whose production is not large and those who are limited either by floor space or by the cost of high-speed continuous-bleach ranges have been handicapped in their desire to adapt their preparation operations to continuous methods.

MAKERS COOPERATE. Machine manufacturers have been aware of this problem and now offer to the finishers of piece goods so-called "midget ranges," which fulfill the requirements of relatively low cost, reasonable floor space, and balanced produc-

tion of scoured and bleached fabrics. As a result, small finishing plants are now able to process goods by the same techniques used by large-volume plants.

NEW EMPHASIS. In the dyeing operations, still further efforts have been made to streamline methods. General Dyestuff Corp. has just announced a new process (Genray) for dyeing vat colors continuously on both rayon and heavy fabrics. This process is said to improve the fastness, penetration, and levelness of this class of dyes.

Dyeings are carried out at relatively low speeds. Goods are developed wet in the Williams Unit, where the reduction bath is very carefully controlled by means of electrometric methods. Chemical inhibitors and protective agents are used with certain dye combinations.

A new dyeing machine—Bond—has been announced to the industry. This machine consists essentially of two perforated plates submerged in a dyebath. The cloth passes between the plates. A pump forces the dye liquor through the perforations in the plates against both the back and face of the cloth so that an equal force is exerted on both sides of the fabric. Air is excluded from the system so that there is no danger of oxidation during dyeing.

All types of colors may be dyed in this machine, it is stated. It does an excellent job as a washer and may be used to apply finishes on fabrics difficult to penetrate, the makers claim. Little floor space is required for this unit. One or more machines may be set up in a range to carry out dyeing, oxidizing, soaping, and washing operations continuously.

This piece of equipment offers a new and different approach for the continuous application of dyes to fabrics.

MORE INSTRUMENTS. Adequate instrumentation is heavily stressed in the modern finishing plant. Instruments for recording and controlling temperature, level, and chemical concentrations are in general use. A modern dye range cannot operate at its maximum efficiency without precision controls and feeding devices.

Recently, instrument manufacturers and research chemists provided another aid to the dyer, one that will become of increasing importance and usefulness to him in the production of exact matches and uniform shades—oxidation-reduction-potential indicators.

Measurement of the oxidation-reduction potential of chemical solutions is not new to the laboratory chemist, but only recently have indicating and recording instruments suitable for plant installation been made available. So oxidation-reduction control, or redox measurement, is something new for the dyer.

Much remains to be learned about what reduction potentials mean in terms of chemical and dye concentrations under specific conditions of dye application, but there will be increasing adoption by dyers of redox recorders.

EFFECT OF RESINS. Resins to impart water repellency, soil resistance, spot resistance, crush resistance, and shrinkage stabilization are being used more and more. In conjunction with mechanical calendering procedures, such resins open a whole new field of attractive fabrics and finishes.

As the production of resin-treated fabrics has increased, chemical research has kept pace in the development of new resin types.

In addition to the many urea- and melamine-formaldehyde types of resins being offered for crush resistance and stabilization, the modified-urea-type resins have been available for about a year. These resins, such as Rhonite R-1 and Zeset S, are reasonably priced, easy to apply, have good storage life, are relatively free from odor development, and have low chlorine retention.

Polymerizing one resin with another offers attractive possibilities for durable-finish effects, and we may expect new and interesting developments in this field of copolymer resins. A recent example of a copolymer type, the vinyl acetate-urea formaldehyde copolymer resin, is worthy of mention. Another resin in this same group is a cross polymer of an organic silicone with urea formaldehyde. This type of resin not only should have good crush resistance but also should impart definite durability and water repellency to a fabric.

Prepolymerized UF resins are now available to the textile finisher. Such resins have been formed by completely polymerizing urea-formaldehyde resins during manufacture. Solutions and emulsions of these resins can be applied by the finisher simply by padding and drying. Thus, the finisher is able in many cases to eliminate the troublesome and expensive curing, washing, and drying operations after resin application. Such resins are said to have as good crush resistance and stabilization properties as many of the unpolymerized resins now in general use.

For Stability and Appeal Wool Looks to Blends

WHEN WOOL PRICES went skyrocketing a couple of years ago, the lower prices of several of the new synthetic fibers, together with the almost self-evident fact that their price trends would be stable, gave synthetics an excellent entree to the woolen and worsted field.

Competitive possibilities of synthetics were dramatized most realistically by these unprecedented wool prices. Two other factors, somewhat less tangible but equally real, that contributed to the ready acceptance of the newer synthetic fibers were: (1) the sales promotion by the producers of synthetics, and (2) the glamour of the "new." Many practical problems of production and manufacturing had not been solved, but these new fibers were on the go.

WOOL'S HAND FORCED. Some producers of woolens and worsteds calmly tackled the problems of processing these new synthetics with the deliberate research approach, but others were somewhat frustrated.

Many problems have been solved or are well on their way toward solution in the area of blends with woolens and worsteds. However, many operations are still on a makeshift basis.

Already, as everyone knows, a limited number of fabrics of woolen and worsted blends with several of the synthetic fibers are on the market. They are good fabrics. Some possess special properties, such as wrinkle resistance, crease retention, excellent wearability, good styling, and launderability.

PREPARATION PROBLEMS. In blends, there is apt to be excessive damage in opening and carding. Excessive breakage runs into excessive noilage in combing.

Improvements are needed in stock lubrication and in the assured control of static electricity. One of the most troublesome features of some synthetics is their capacity for carrying large charges of static. The fibers are so hydrophobic that humidity control is not the answer.

Improvements in this area must be aimed toward ease of removing lubricants or neutralizing them so that they don't interfere with subsequent dyeing and finishing of the fabrics. Drawing and spinning efficiency must not be hampered, and cost must be low.

Some synthetics, while highly impervious to water, appear to have a strong affinity for oils. The fibers

absorb oils, become discolored, and are very stubborn in scouring or dry cleaning of the final fabric. Lubricants must act to lubricate fiber surfaces, must not be too deeply absorbed, must leave no stains or discoloration, must be compatible with the blended wools as well as with other synthetics, must be completely and easily removed, and must be reasonably priced.

DYEING PROBLEMS. Dyeing is the field that offers the greatest opportunity for improvement in the mill use of synthetic fibers. Dyeing techniques are limited. In most cases, it is not possible to produce a complete line of union shades, even when stock-dyeing procedures are used. An exceedingly limited number of piece-dyed shades may be produced on a couple of the synthetics when they are blended with wool, but it is impossible to produce piece dyes with many wool-synthetics blends.

In addition to the problem of dyeing blended woolen goods in the piece, there are opportunities for improvements in stock dyeing all synthetics. Some of the areas for improvement include better colorfastness to such mill operations as scouring, fulling, carbonizing, decating, and crabbing; and better fastness to perspiration, sunlight, dry cleaning, pressing, etc.

High temperatures offer the most promising development in dyeing certain of the hydrophobic synthetic fibers. With dyeing temperatures up to 235 or 250° F., it is possible to use a greatly increased number of dyes. Heavier shades are produced at elevated temperatures, with less dye than ordinarily needed, because the fibers acquire an increased affinity for the dyes. At the higher temperatures, many lower-priced dyestuffs will affix themselves—dyes that do not work at all with some synthetics at ordinary dyeing temperatures.

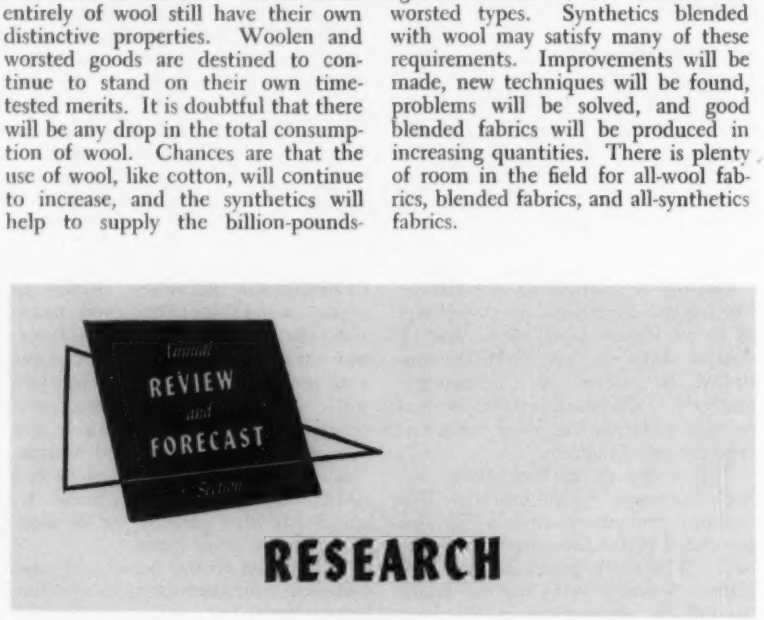
Several makers of dyeing equipment, especially in the stock-dye field, are making equipment to stand the increased pressures of high-temperature dyeing and to accommodate other problems that such pressure systems involve.

FINISHING PROBLEMS. Every new blend of man-made fibers with wool presents a new problem to the finisher. In fulling operations, particularly, the effect is felt. Some fibers tend to increase the felting properties of wool in the blend. Such fabrics as these require extreme care in wet processing to prevent damage from overhandling.

Unless practical dyeing combinations are chosen, the finisher can get into difficulty from color transfer by migration and sublimation. Experience and good judgment are working to minimize such problems.

FUTURE IS GOOD. Fabrics made entirely of wool still have their own distinctive properties. Woolen and worsted goods are destined to continue to stand on their own time-tested merits. It is doubtful that there will be any drop in the total consumption of wool. Chances are that the use of wool, like cotton, will continue to increase, and the synthetics will help to supply the billion-pounds-plus increase in fiber consumption expected in the next 10 yr.

With an increasing population and greater consumer markets, there will be increasing needs for greater yardages of fabrics of the woolen and worsted types. Synthetics blended with wool may satisfy many of these requirements. Improvements will be made, new techniques will be found, problems will be solved, and good blended fabrics will be produced in increasing quantities. There is plenty of room in the field for all-wool fabrics, blended fabrics, and all-synthetics fabrics.



Industry Doubles Expenditures For Research in Six Years

- **Both fundamental and applied research are receiving more textile attention than ever before**
- **Textile-research expenditures in 1952 are estimated at $30-million**
- **Summary of research activities shows wide range of problems under study**

By WILLIAM A. NEWELL, Consulting Editor, TEXTILE WORLD

RESEARCH AND DEVELOPMENT WORK in the textile industry was carried on in 1952 at an unprecedented pace. Introduction of new fibers and counteroffensives toward development of new properties and new uses for existing fibers caused a vast development program. This program meant large expenditures by mills and government agencies to make new products, better products, and less costly products.

That these expenditures are perhaps greater than ever before is evident in the number of mill pilot plants being organized, the number of new products being marketed by mills, the increasingly large budgets of mill and independent research laboratories, and the investigations being conducted by mills into long-accepted standards of operation.

In short, the textile industry is becoming increasingly aware of the value of research, both fundamental and applied.

TOTAL EXPENDITURES. It is difficult to estimate the total expenditures made for textile research and development by mills and government agencies, but certain landmarks provide a guide.

Burlington Mills spent over $4,000,000 in 1951 on these activities alone.

In 1952, the total research income

of textile-school research departments and of independent textile-research laboratories can be estimated at about $1,000,000.

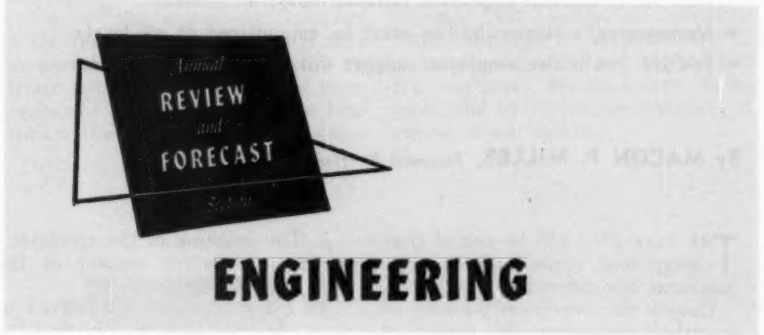
Estimates of expenditures by other mills—Deering-Milliken, Stevens, Dan River, Pepperell, Springs, Cone, Chicopee, West Point, and others—for research pilot plants and expenditures by such mills and by government agencies (including the military) for fiber research, fabric development, process improvement, etc., bring the total research expenditure in the textile industry to about $30,000,000.

This figure represents more than a 100% increase over textile-industry research expenditures in 1946. It also represents an increase in percent of sales being devoted to research by the industry from about 0.14% in 1947 to about 0.20% in 1952.

Expenditures for the benefit of the textile industry by fiber producers, machinery manufacturers, and suppliers to the industry would swell this total. The figure must be still higher, however, to put the textile industry in line with other progressive industries in percent of sales devoted to research.

JOINT SPONSORSHIP. For some time, mills have jointly supported research at such institutions as TRI and ITT through contributions on a small unit basis. But evidence of new mill faith in applied research came in November when six Southern mills agreed to support jointly a major project on cotton processing, the results of which will later be made public, at the School of Textiles, N. C.

(*Continued on page 324*)



New Ideas, New Materials Dominate Mill Engineering

- **The typical new textile plant of today is on a knoll near a highway, is single-story, and has U-shaped layout**
- **Lighting requirements are on the increase, and better handling of power and energy is being specified**

By JAMES H. KENNEDY, Southern Editor, TEXTILE WORLD

PLANT ENGINEERS today are using new materials and new techniques to build and modernize the most efficient textile plants the world has ever known. The accent is still on flexibility. The plant of today must be able to do a good job on today's fibers and blends and still be able to expand, rearrange, and reshuffle for tomorrow's fibers and blends.

PLANT LOCATION. The trend continues Southward, for reasons continually discussed (and often distorted) in the daily press. There are also signs that the woolen and worsted branches of the industry, preceded by the scouring and combing sections, will be increasingly in evidence in the South. But there are also indications that progressive-thinking communities in other areas may soon have new textile plants—Wyoming, California, New Hampshire, Maine.

PLANT SITE. With no basements to think about when they are selecting the actual piece of ground on which to build a textile plant, engineers like to select a knoll that will give both natural drainage and a solid foundation. With the typical slab-on-grade construction, only the ends of the plant need to be supported by fill. A little grading is all that is necessary to have most of the floor based on solid ground, the best and most economical foundation yet discovered.

Access to both highway and railroad is desirable, but smaller plants are finding that a railroad spur is decreasingly important. It is still best to have both means of transportation handy, however; and it doesn't take a very large volume to justify a spur track on the basis of savings alone.

Employee transportation is no problem—many new mills are located far from public transportation. It's usually best to have most employees from within a 5- to 10-mi. radius, but some can be as far as 25 mi. away without difficulty. This factor, too, is important in the selection of the plant site and often causes management to give other factors less consideration.

PLANT LAYOUT. The U-shaped plan is still the most popular for new construction. Minor variations of the U still give the basic advantages of a single loading platform, three sides on which to expand, and minimum wall cost per square foot of production area.

One variation gives an almost circular flow pattern. In this case, there is just one warehouse area for both receiving and shipping. This plan makes maximum use of the shipping crew and also offers flexibility in the storage area to allow space for either excess raw stock or finished goods.

Another variation gives straight-line flow. Receiving is at one end of the plant and shipping is along the dual-purpose platform at the other end. One crew can also be used in this setup, and the decrease in its efficiency may be more than balanced by an increase in production efficiency due to the straight-line flow.

Few new plants can justify the expense of more than a single story, although one of the newest mills in the South has a full basement. The trend is definitely toward basementless, single-story construction.

Large bays continue to be specified. Perhaps the most economical bay size is 64x32 ft. because much heavier beams and supports are needed for

larger bays. Bays up to 110 ft. square are possible, however, if expense is no factor.

CONSTRUCTION MATERIALS. Steel frameworks, masonry walls, and concrete floors dominated the 1952 picture, and no major changes are in sight for 1953. Good roof planking is getting harder to obtain; and this disadvantage, coupled with the greater expense and shorter life, has caused builders to specify concrete slab more and more.

Insulated roofs continue to be a "must," and most new plants specify insulated walls as well. The tiling of inside walls, still an "extra," is being specified in many cases because of neater appearance and lower maintenance cost. False ceilings are another extra feature, but not all new plants are willing to take on this expense.

Perhaps 1953 will see the development of prefabricated insulated panels for outside walls. There is a definite need for such panels, and their development would be heralded by builders.

CONDITIONING. Complete air conditioning can now usually be justified in spinning and weaving, but air changing continues to suffice in other processing areas.

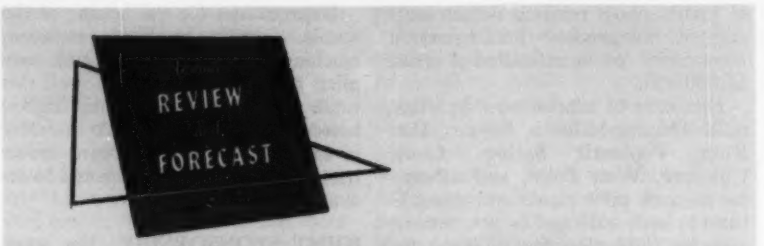
Designers with an eye for looks are worried about the appearance of present-day ductwork. One answer is, of course, a false ceiling. But adaptation of some European ideas of transporting air in pipes instead of in ducts may well be another answer. In such a system, air would flow from ceiling to floor in an almost vertical path. Return-air outlets in the floor under machines would minimize heat effects and decrease the effect of flying lint.

LIGHT AND POWER. Lighting requirements continue to increase. Cloth rooms are going to 75 ft.-candles, weave rooms to 65, and spinning to 60. The coming year may see increased application of mercury-vapor or sealed-beam incandescent units, but fluorescent equipment continues to lead in acceptance.

Some power plants converted to natural gas in 1952, but in many areas costs cannot justify a switch yet. More efficient handling of electrical energy was noticeable in the past year, and the benefits of better substations and switchgear will cause more mills to revamp outmoded electrical systems.

Package-type steam boilers are coming into wider use, both to reduce loads on existing boilers and, in new installations, to save space.

Atomic energy as a competitor with present-source electricity is still many years away.



PERSONNEL ISSUES

Stability in 1953 May Bring Solutions to Major Problems

- **New administration to provide suitable industrial climate**
- **Management's responsibilities must be emphasized at all levels**
- **Positive and active employee support will strengthen our system**

By MACON P. MILLER, Personnel Director, Fieldcrest Mills

THE YEAR 1953 will be one of challenge and opportunity for the American free-enterprise system.

Despite the continued presence of unsettling influences—the impact of the Korean war and defense production on the economy as a whole, the effect of the CIO-AFL jurisdictional dispute on the textile industry, etc.—there is reason to hope that 1953 will bring greater stability and certainty to industry.

Many experts feel that the new administration will have clearer insight into the needs and problems of industry and will manage the defense program more efficiently than Truman's Administration did. In the field of labor relations, the experts anticipate no major amendments to the Taft-Hartley Act of a type that would affect day-to-day relationships with employees.

TWO PROBLEMS. If these expectations prove true and the threat of full-scale war eases, the climate will be right for industry to redouble its efforts toward solutions of two major personnel problems:

1. The development of managerial personnel, not in technical competency alone, but also in the fulfillment of management's broad responsibilities to employees, customers, stockholders, the community, and the nation

2. The enlisting of the employee's positive and active support of the goals of the enterprise

To the extent that we succeed in these efforts we have strengthened the American free-enterprise system. Our failures invite the imposition of outside solutions that weaken the system. If we cannot succeed under encouraging conditions (of which 1953 gives promise), the outlook is bleak indeed.

FOR MANAGEMENT. The American Management Assn. has conducted courses in management development that might well be emulated in individual companies. The objectives of such courses are to indicate to management people and potential replacements the responsibilities of management and to provide the "trainees" with a knowledge of methods for carrying on an enterprise to meet these responsibilities.

There is, of course, a gap between learning principles and methods and putting them into practice. The test of a development program is action. But a start can be made through a management course. And, by a process of repeated evaluations of individuals and of the company as a whole, our progress in the fulfillment of responsibilities can be estimated.

FOR EMPLOYEES. In the area of employee satisfactions, which tie in di-

rectly with management's responsibility to employees, we have come to this realization: Adequate pay and good working conditions are not, in themselves, the full answer to the problem of securing maximum cooperation from employees and of satisfying their needs. Beyond adequate pay and physical comfort, the employee has social needs that require his being given opportunity for satisfactory personal contacts and relationships within the mill.

With all these conditions present, the employees still are not part of the team unless: (1) there is adequate communication up and down the line, and (2) the employee is permitted to contribute to the solution of some of the problems concerning his work. The need for better communications has long been realized, and advances have been made in this direction. However, the further move toward employee participation has been slow.

One of the reasons for hesitancy is the fear among some management people that the employees will infringe upon the prerogatives of management. It is difficult to see how such a threat exists in specific situations where mill employees assist managerial personnel in the solution of problems.

For example, the employees do not usurp a managerial function when their ideas are secured on such problems as waste reduction and quality. If an attitude of mutual trust exists between management and employees, there is little need for protecting prerogatives on either side. Both management and employees can cooperatively apply their thinking and actions to the solution of problems without disturbing the prerogatives.

IN BRIEF. These, then, are our major personnel issues in 1953:

1. To develop managers who can meet the broad social responsibilities of industry

2. To develop employees who will "belong" to the organization as participating members

Other issues will be with us; for example, the manpower situation, which, although not as acute in 1952 as anticipated, is still not bright. But the two issues discussed seem to be most vital to the long-run progress of our economic system.

WASHINGTON OUTLOOK

1953 Will Bring Less Influence by Government

- **Provided, of course, Korea doesn't flare up**
- **Government procurement is still a big factor, but decreasingly so**
- **Restrictions will be fewer; 1953 should be healthy**

By DON DILLEY, McGraw-Hill Washington Bureau

WASHINGTON'S INFLUENCE on the textile industry in the coming year will probably be less than for any year since World War II.

The one thing that could really make the difference is a change in the Korean situation. If Korea flares up and the threat of a bigger war becomes a real one, look for another spurt of inflation similar in kind (if not in size) to that which followed the original outbreak in June, 1950.

On the other hand, if the Korean war is settled, watch out for a general business sag.

The past year was one in which textile producers were still feeling the hand of Washington officials in several ways—military buying, government controls on prices, and government allocations of raw materials.

GENERAL PREDICTIONS. Price support for cotton and wool isn't likely to be a really hot issue in 1953, and even if it should the Eisenhower administration is completely committed to keeping price supports as they are for a couple of years ahead.

Assuming no enlargement of the war, 1953 should be one in which the textile industry, its customers, and its suppliers will be virtually free from all government controls.

Government control over prices and government allocation of materials are not likely to be factors in this year's economy. The Republican Congress is almost sure to leave controls as it finds them.

Conversion by textile-machinery manufacturers to defense has slowed up greatly. Very little conversion is being done now, and little more is foreseen unless there is a change in the defense situation. On the other hand, there will be a little reconversion. Most of the present new machinery is going into replacement of old equipment rather than into plant expansion.

PROCUREMENT PICTURE. Government procurement is still a big factor, although not as big as last year. The Office of the Quartermaster General predicts that clothing and equipment procurement during 1953 will not be as heavy as last year but will remain at a rather high level. Buying after June will be on a reduced level but will remain steady for the remainder of the year.

The joint military procurement agency for textiles and apparel got under way last year with the establishment by the Secretary of Defense of the Armed Services Textile and Apparel Procurement Agency. This agency will act as the procurement office for the four military customers: Army, Navy, Air Force, and Marine Corps.

This unification should simplify relations between industry and the Armed Services in that greater uniformity in procedures and procurement will result. The plan may lead to greater economies for the industry to the extent that off-season procure-

ment by the military will mesh with civilian demands and result in lower costs to contractors and consequently lower prices to the military.

Stocks of textile products in the Department of Defense Duck and Webbing Pool have been established at necessary levels to permit current operations and to provide for reserve stocks for initial phases of an all-out mobilization. The Office of the Quartermaster General makes no prediction as to procurement requirements for the current fiscal year and early periods thereafter but declares that procurement will be at a much lower level than during the past year, when the initial stocks of the pool were being established.

In discussing clothing and equipage procurement activity for 1953, the Office of the Quartermaster General predicts that such activity will be considerably reduced as compared with fiscal 1952. Procurement for normal operating requirements will be near the $250-million level, much smaller than 1952. However, the increased mobilization reserve buying will bring 1953 total procurement nearly up to the 1952 figure.

SYNTHETICS. Increased production of synthetic fibers will be more and more important to the industry in 1953. The Bureau of Agricultural Economics estimates that world productive capacity of rayon staple alone will be about 2.5-billion lb., a 50% increase over capacity in 1951. Productive capacity in the United States is expected to increase to 360-million lb. next year.

World productive capacity of acetate staple is expected to increase by 60% by the end of next year. Of the other fibers—nylon, Orlon, Dacron, dynel, Vicara, Acrilan, etc.—United States production is expected to increase much more than in the rayon and acetate staples. Output of these other fibers in 1951 was 34-million lb., and it is expected to reach more than 150-million lb. by late 1953.

WOOL. Price-support buying of wool by the Commodity Credit Corporation is expected to be no greater this year than in 1952. Wool has been selling over support prices, and the experts expect it will continue to do so. On July 31, 1952, only 13-million lb. of wool was under loan from the CCC, compared, for instance, to 459,-million lb. in 1946.

COTTON. Both supply and disappearance of cotton are expected to drop in the 1952-53 crop year. The crop is larger than earlier estimates, and disappearance will decline more. Carry-over for this year will almost surely be larger than 1952.

The Commodity Credit Corporation reported that on Nov. 21, 1952, there were loans, applications, and repayments in 333,260 bales. Total cotton pooled from the 1951-50-49 crops was some 235,000 bales, of which 234,870 were of the 1951 crop. Through Oct. 15, 1952, loans were outstanding on only about 21,000 bales of the 1952 crop, as compared with 237,000 bales from the 1951 crop a year earlier.

MACHINERY. There will be no difficulty in getting machinery this year. Materials control is not a great factor now and may be out completely soon. The only metal that will probably be hard to obtain throughout the year is nickel-bearing stainless steel.

For the machinery industry, production may be down a little for the first two quarters of '53. Since maintenance and repair is 50% of the normal capacity of the industry, it will take only a few new machinery orders to bring the level close to capacity.

International Competition Sharpens As Countries Expand Exports

- **Leading textile countries are girding for a battle to enlarge or preserve export markets**
- **The first return to normal world-production and supply-and-demand conditions since 1941 means the competitive battle is on again**
- **The recent International Cotton Textile Industry Conference in England set the stage**

By RICHARD C. SCOTT, New York Editor, TEXTILE WORLD

JAPANESE PRINT CLOTHS and broadcloths in the gray were available in the United States at the year's end at below American market prices. . . . British and American cotton goods and British worsted fabrics have Canadian textile mills in a tight price squeeze. . . . India is overproduced, has shut down some mills temporarily, and is getting behind a big export drive in cottons and jute. . . . Why? Because world textile conditions are returning to normal.

COTTON CONFERENCE. Top representatives of the cotton-textile industry from many countries gathered at Buxton, England, last fall to assess the world outlook for cotton textiles. The upshot of the discussion was that three of the four main cotton-textile exporting countries—India, Japan, and Britain—served notice that they expect to increase their export business in 1953: India by 234-million sq. yd. over 1951, Japan by 18-million sq. yd., and Britain by 482-million sq. yd.—a total of 734-million sq. yd. by those three countries alone.

(*Continued on page 184*)

MECHANIZED FIBROGRAPH operates automatically while John Tallant prepares another specimen. This procedure increases the output 60 to 80%. The curve obtained from the mechanized instrument is interpreted in the conventional manner. The mechanization does not change the basic measuring instrument.

SRRL Mechanizes the FIBROGRAPH

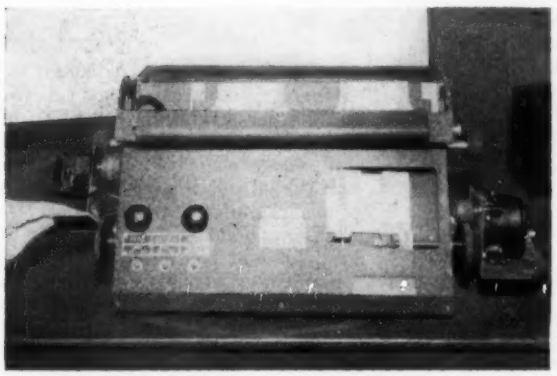
▶ The Fibrograph can be mechanized for $250 with commercially available parts. The chart curves are smoother, and output is increased 60 to 80%.

A SIMPLE WAY to mechanize the Fibrograph, used to measure the length of cotton fibers, has been developed by John D. Tallant, physicist at the Dept. of Agriculture's Southern Regional Research Laboratory, New Orleans, La. The basic measuring instrument is not modified.

A small motor drives one handwheel, and a packaged feed-back control drives the other wheel. The component parts are commercially available, and no electronic work is required. The conversion cost is about $200 for parts and $50 for labor.

The curves obtained from the mechanized instrument are smoother than those generally obtained by hand operation and are interpreted in the conventional way.

Output is increased 60 to 80% because the operator is free to prepare the next specimen while the Fibrogram is being drawn.



THE LEFT-WHEEL DRIVE is lowered to engage the left handwheel. The weight of the motor provides friction for the drive. The driving element is a 1⅝-in. rubber wheel made from a rubber stopper. The balancing motor for the right-wheel drive has the same features, with a 1¼-in. driving element.

THE DRIVES can be disengaged between tests or for hand operation. The switch below the motor stop permits optional hand operation. The balancing motor operates in conjunction with the amplifier mounted on the back of the Fibrograph. The shaft on the balancing motor is adjusted to prevent overshooting or sluggishness.

Waste That Must Be Accounted For

a. Winding waste
b. Knitting waste
c. Cutting waste
d. Seaming and looping waste
e. Invisible waste
   I. Loss in finishing
   II. Moisture loss
   III. Weight loss

Overhead Expenses

Indirect labor costs
Heat, light, and power
Gas and water
Insurance (fire and theft)
Payroll taxes
Building taxes or rent
Workers' compensation
Office supplies
Packing and transportation
Legal and bank charges
Interest on loans
Social services (canteens)
Holidays with pay
Depreciation on plant and machinery
Needles and sinkers
Sliders and jacks
Oil and grease
Repairs
Overhauls
Spare parts
Chalk
Overtime pay
Learners' pay
Incentive bonus

Labor Costs

Direct Labor

Winding
Knitting
Gray mending
Cutting
Looping
Seaming
Sewing
Elastic threading
Trimming
Preboarding
Mending
Examining
Finish mending
Boarding
Marking
Pressing
Pairing
Folding
Boxing

Indirect Labor

Management
Supervisors
Fixers
Stockkeepers
Maintenance men
Carpenters
Clerks
Office staff
Personnel workers
Canteen workers
Floor sweepers
Watchmen
Shippers

To Show a Profit, You Must Figure KNITTING COSTS

The prime object of cost finding is to determine, by the most simple method, a selling price of any particular garment or fabric to produce a suitable profit. Your cost sheet should include costs for—

- Materials
- Labor
- Overhead
- Finishing
- Discounts
- Selling
- Seconds

By **JAMES H. BLORE,** Assistant Editor, TEXTILE WORLD

THERE ARE SEVERAL BASIC PRINCIPLES of cost finding that can be adopted to all types of knitting mills. There is no reason why the full-fashioned mill, tricot plant, or circular-hosiery mill should not benefit by using the principles outlined in this article.

(These principles are based on a memorandum issued by the Knitted Outerwear Assn. and prepared by Scovell, Wellington & Co.)

In addition to providing a suitable selling price, a satisfactory cost system will supply information to:

1. Cut costs
2. Order raw materials
3. Provide an easily accessible record of wage rates
4. Plan production schedules

Article Sock (Men's) Date 12/1/52

Style KR 246 Size 11 Finished weight 1 lb. 3 oz. Sizes from 9½ to 12½

MATERIALS

Yarn No.	Yarn	Cut Wt. per Doz. Lb.	Oz.	Winding Waste %	Amt.	Knitting Waste %	Amt.	Cutting or Looping Waste %	Amt.	Invisible Loss %	Amt.	Gross Total Lb.	Oz.	Price per Lb.	Cost	
2/28	Worst.	1	2.1	03	0.05	3	0.54	3.5	0.63	2.5	0.45	1	3.8	3.25	4.022	
1/48	Nylon		1.5	-	-	3	0.05	-	-	2	0.03		1.58	3.60	.356	
														TOTAL YARN COST	4.378	4.378

	Amount		Price Each	Total Price		
Looping and seaming thread	0.42	.02	3.00	.079		
Transfers	24		005	.120		
Labels						
Boxes	2		080	.160		
			GRAND TOTAL	.359		.359

DIRECT LABOR		
Winding 1 lb., 2.1 oz. at 2.8 cents per lb.	.032	
Knitting	.185	
Looping	.220	
Boarding	.060	
Mending and inspecting	.115	
Pairing and folding	.065	
Transfering	.015	
Parcelling or boxing	.050	
	.742	.742
Mill overheads at 42 % of direct labor costs	-	.312
General overheads at 24 % of direct labor costs		.178
Finishing		.120

Loss on seconds	at 2.5 %	Selling price = 100%	MANUFACTURING COST 6.089
Discount	at 1.5 %	Manufacturing cost X 100 / (100 — Profit etc.) = 6.089 X 100 / 100 - 14	SELLING PRICE 7.08
Selling expenses	at 2.5 %		
Profit	at 7.5 %		
	14.0 %		

THIS COST SHEET brings together the various cost elements and arranges them so that a suitable selling price can be calculated.

5. Assist quality control
6. Provide information for waste control
7. Supply a method of cost control
8. Concentrate on lines that provide the highest margin of profit

While the system outlined here may not solve all cost problems, mill men setting up a cost-finding system or having trouble with their present system will derive some benefits from the ideas put forward.

Cost elements may be divided into seven main groups—

1. Raw materials
2. Direct labor costs
3. Overhead expenses
4. Finishing costs
5. Selling expenses
6. Loss on seconds
7. Discount and profit on returns

1. Raw Materials

Yarn comprises the largest single material item to be taken into consideration in any knitted product. This item very often constitutes more than 50% of the selling price where expensive yarns such as nylon and worsted are the raw material.

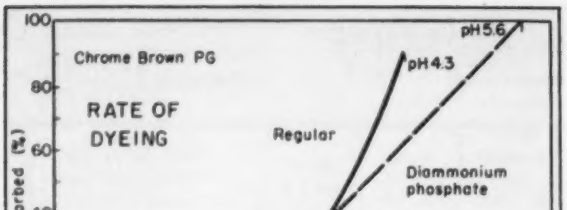
Every ounce of yarn used in the manufacture of the product must be accounted for. This item must also include waste and loss in weight due to uncontrollable factors. For example, 1 doz. sweaters that weigh 12 oz. each would contain 9 lb. of yarn; but about 10½ lb. of yarn would be required, since about 1½ lb. would be waste. There will be a smaller percentage of waste on articles of hosiery, gloves, and fashioned goods.

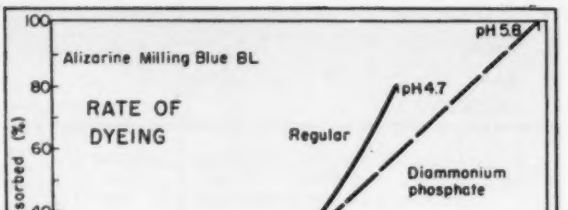
These losses in weight may be classified as:

a. *Winding* Waste

This loss is greater when the yarn is wound from skein to bobbin than when it is wound from cones. The waste will be comprised of ends, bad knots, tie bands, and snarls and will vary according to the efficiency of the operator and the quality and number of the yarn. The waste from this operation should not exceed ¾ % of the gross weight of the yarn.

(*Continued on page 266*)





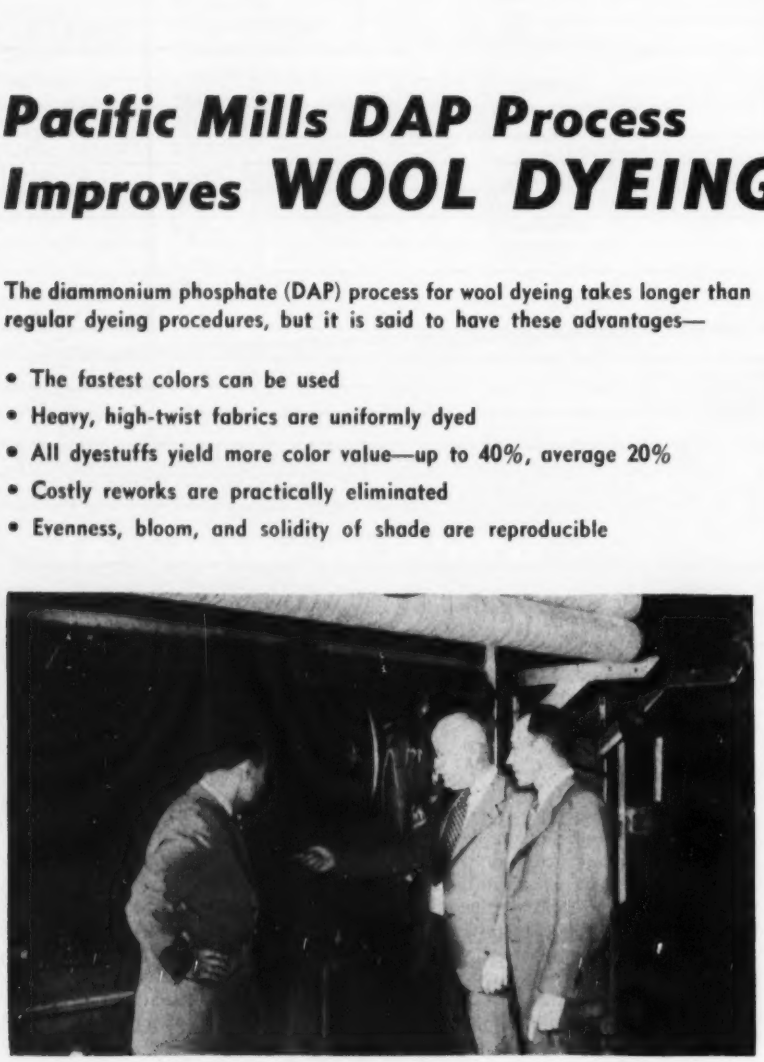
TWO TYPICAL DYEING CURVES show the relationship of the DAP process to regular dyeing procedure. In each case the DAP curve is less steep, showing a more gradual deposition of dye; longer, showing more yield of color; and more uniform in pH drop, showing buffering effect of DAP. Points on the curves are determined by spectrophotometric measurement of sample swatches.

Pacific Mills DAP Process Improves WOOL DYEING

The diammonium phosphate (DAP) process for wool dyeing takes longer than regular dyeing procedures, but it is said to have these advantages—

- **The fastest colors can be used**
- **Heavy, high-twist fabrics are uniformly dyed**
- **All dyestuffs yield more color value—up to 40%, average 20%**
- **Costly reworks are practically eliminated**
- **Evenness, bloom, and solidity of shade are reproducible**

By GEORGE M. MOISSON
Assistant Editor, TEXTILE WORLD



JOHN N. DALTON, director of chemical research, Pacific Mills, Worsted Div., (center) discusses the DAP process with John P. Ploubides, superintendent of dyeing, (left) and Gerald M. Cote, textile specialist, Victor Chemical Works.

PACIFIC MILLS, Worsted Div., Lawrence, Mass., has been working with diammonium phosphate for over 8 yr. In that time a thorough evaluation of many dyestuffs—dyed by DAP vs. regular procedures—has been made.

Victor Chemical Works, Chicago, Ill., has purchased the patent rights from Pacific and will issue certificates granting free use and technical service to mills desiring to use the process.

Why DAP Works

DAP is a strong "buffer"—that is, in solution it creates a pH control that is hard to upset, even when appreciable amounts of acid or alkali are added. At normal temperatures, below the boil, $(NH_4)_2HPO_4$ solutions are mildly alkaline; at the boil, NH_3 is given off slowly, reducing the pH at a gradual rate.

Wool dyes have great affinity for the fiber when solution pH is 7 or below. Naturally, some types of dyes have more affinity than others and must be controlled to obtain even and reproducible results time after time.

Generally speaking, dyestuffs in molecular solution have less affinity and dye more evenly and more slowly than dyestuffs in colloidal suspension.

One of the most important effects of DAP is to decrease particle size of colloidally dispersed colors and thus reduce their affinity during the critical period when pH drops below 7 shortly after the boil is reached and the wool is in condition to accept the color.

Condition of Wool Is Important

Unless a mill degreases its own wool and has positive control of every batch, the pH of the wool is bound to vary. Pacific has found that a conditioning bath of 5% DAP at the boil for 20 min. serves to swell the fiber, neutralize any acid or alkali present, and put the wool in an ideal condition for dyeing. This bath is then dropped, and a fresh bath with 5% DAP is prepared.

The DAP process lends itself well to continuous methods of wet finishing. Lengthy dolly-washing between carbonizing, dyeing, and finishing is not necessary because the buffering action of DAP makes the acid and alkaline residues ineffective.

Comparative Dyeings Illustrate Effectiveness

A group of dyeings picked at random from the files at Pacific showed swatches mounted on cards (the cards from which the spectrophotometric curves in the accompanying graphs were drawn) that compare samples taken from two dyeings run simultaneously, one DAP, one regular procedure. All dyeings were 2% color.

In each pair of dyeings the DAP swatches shaded gradually in depth from beginning to end of the cycle. No great variations were noticed, even at the beginning of the boil. All dyeings appeared heavier, looked more "bloomy," and showed better and more even coverage. These dyeings were all made on medium gabardines.

A few of the dyeings, with procedures and comments, follow:

Irgalan Grey BL (neutral) 2%

Pacific method

Wet out, 20 min. at boil, 5% DAP, drop, wash cold

Fresh bath, 5% DAP, 10 min. cold, add color, raise to boil in 1¾ hr. Add ½% Maxitol (highly sulfonated castor oil) before dissolved color is poured in

Boil 1 hr., add 1% ammonium sulfate

Boil ½ hr., add 1% ammonium sulfate

Boil ½ hr., add 2% ammonium sulfate

Total boiling time, 2½ hr.

Drop, rinse. Use ½% acetic acid (84%) in final rinse

(*Continued on page 202*)

Check These Tips for Running SYNTHETICS on Wool Systems

▶ Almost any information on running synthetics on machines built for wool fibers is useful. Here are some tips that aren't intended to be the last word, but they make a good checklist for you to compare your own experience against.

By M. J. KOROSKYS, Assistant Professor, Wool Dept., Lowell Textile Institute

THE OPTIMUM CONDITIONS for running wool haven't been determined—much less the optimum conditions for the new synthetics. Synthetics have less variation in denier and length, but they are being processed on machinery designed for a wool fiber, which has serrations that give better interfiber friction and crimp that gives a better grip between parallel groups of fibers.

Evenness tests usually run higher on synthetics than wool because we know less about how to process them. The exact relationship between the evenness expected on wool vs. synthetics is a matter of conjecture.

Here Are Some Tips

CARDING

Most synthetics have been run through an opener before leaving the producer's plant; so you do not need much carding action. An antistatic agent has been added and crimp has been put into the staple fiber. Overcarding will tend to pull out the crimp and cause more difficulty in subsequent operations.

Severe carding will also cause the fiber to elongate, and heat processes in later operations may then relax the fiber. An extreme case of elongation can produce an unintended seersucker effect, especially in blends with unevenly shrinking components.

Open settings may cause rolling and neps.

Air currents, such as those caused by using a fancy on flexible clothing, may cause rolling and create neps in the sliver.

Loading the card will cause neps.

GILLING

In general, on the first few gilling operations, the ratch on the gill box should be opened up. Open the front ratch to 2¾ in. on stock that varies from 6 in. down.

An antistatic roll, oil, and/or bar are helpful in gilling and further operations. These aids are especially needed on three-roll nips with rubber rolls. The percentage of oil used is critical. Moisture changes will play havoc with the drag (interfiber friction).

Too much twist used in open drawing will cause the end to "burn through."

Too little ratching will cause delayed creep that makes the yarn heavier a week after you spin it.

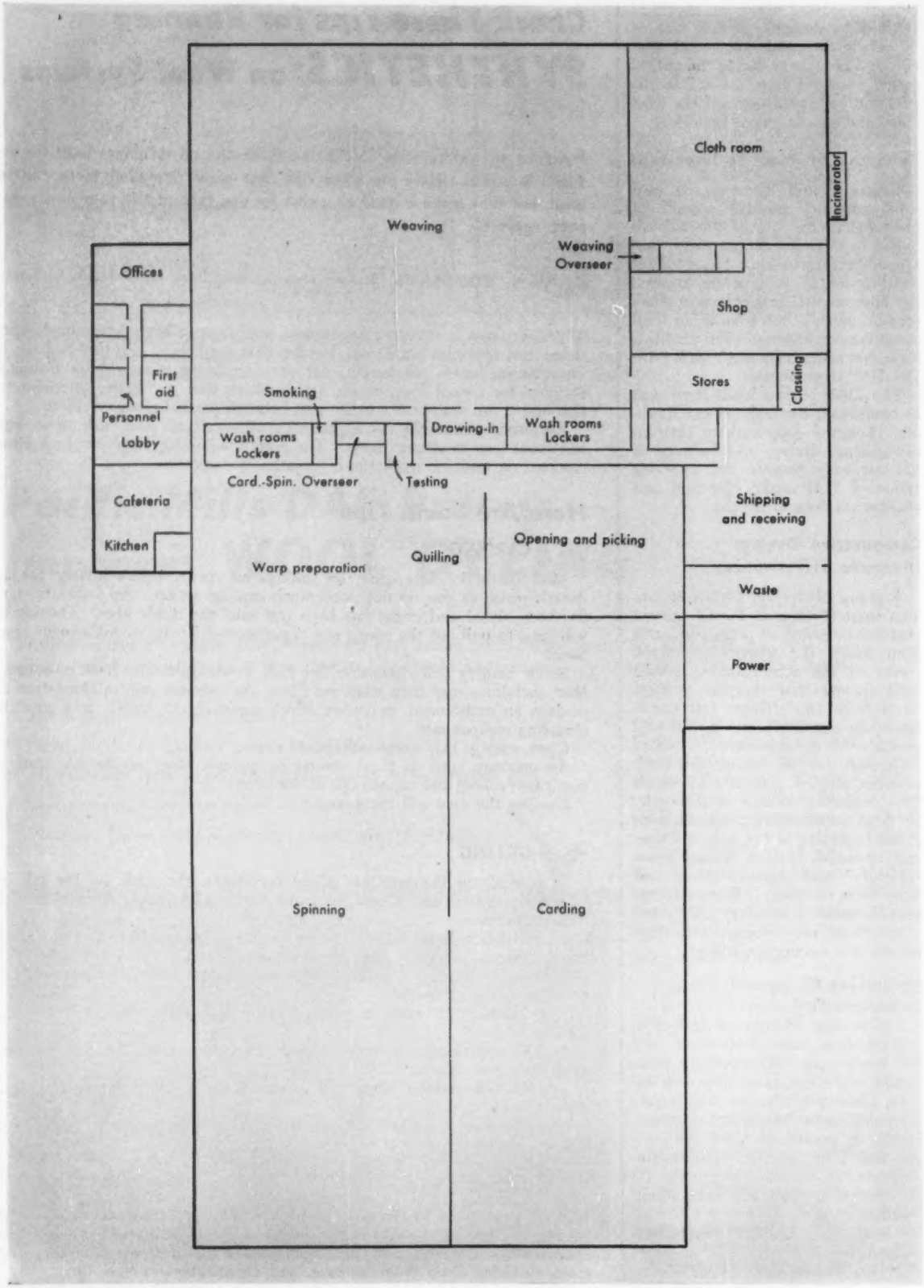
Temperature-sensitive fibers will soften if too much pressure is used on drawing rolls.

A slight decrease in speed will sometimes lick a balky operation, especially on old equipment.

DYEING

Stock is top-dyed in the worsted system and rawstock-dyed in the woolen system. Gilling of the dyed sliver increases the difficulty of getting a good dye. Some of the faults found are hard spots in the sliver, excessive dye, shady spots, distorted sliver from blowing, and channeling.

These problems make it more difficult to get as even a sliver from dyed stock as from natural stock. However, dyeing techniques are being developed that should overcome some of the present difficulties.



MATERIAL FLOW is in a modified U—almost a complete circle because there's a single receiving and shipping area. Services such as offices, washrooms, and smoking rooms are centrally located. Expansion can take place in any direction except to the rear without disturbing existing machinery or interrupting the flow of materials.

FLOORSPACE on the main floor of this modern mill is 212,583 sq. ft. There's another 210,610 sq. ft. in the basement. All employee and supervisory parking is at the front. The elevated tank holds 100,000 gal. of water, mainly for fire protection. The ground storage tank (right rear) has a 350,000-gal. capacity that can be pumped by an electric or gasoline fire pump when necessary.

TW CAMERA TOUR

WHITE HORSE MILL—
The South's Newest Cotton Mill

► One of the two bale-to-fabric cotton mills erected in the South in the past 25 yr., White Horse Mill, designed by the parent mill staff (Maverick Mills, East Boston, Mass.), is an example where latest trends and independent thinking were incorporated.

► Some of the outstanding features of the mill are: a full basement, all new machinery, an unusual receiving and shipping setup, a one-man waste-baling system, special safety measures, and scheduled smoking periods.

By JAMES H. KENNEDY
Southern Editor, TEXTILE WORLD

How Location Was Picked

Noble Foss, president of Maverick Mills, made an extensive trip through the South a few years ago and selected the Greenville, S. C., site for his new mill because of the excellent supply of good labor, the climate, and the transportation facilities. The mill, named after White Horse community, is about 5 mi. from the center of Greenville and is located on a knoll on a tract of clear land facing the Blue Ridge mountains.

Most of the employees live within 5 mi. of the plant, but some of them travel as far as 25 mi. to work.

Three types of transportation are available to White Horse: a spur track of the Piedmont & Northern Railway Co., a major highway within a few hundred yards, and across town, Greenville municipal airport.

Design and Construction Combine Latest Thinking

Designing of the new plant was done by Maverick personnel under the direction of J. J. McElroy, general manager. Daniel Construction Co. built the mill in about 8 mo.

The structural-steel frame gives maximum strength and allows for potential expansion. The masonry walls are 16 in. thick—a 4-in. exterior brick face, 2 in. of Foamglas, 8 in. of common brick, and 2 in. of glazed tile on the interior.

In the basement, the floor is concrete slab on grade. Bays are 13x14 ft.

Bays on the main floor are 26x28 ft., and the floor of reinforced-concrete slab has a ¾-in. Kalman finish.

The steel roof deck has a 20-yr. bonded tar and gravel roof with 2-in. cork insulation.

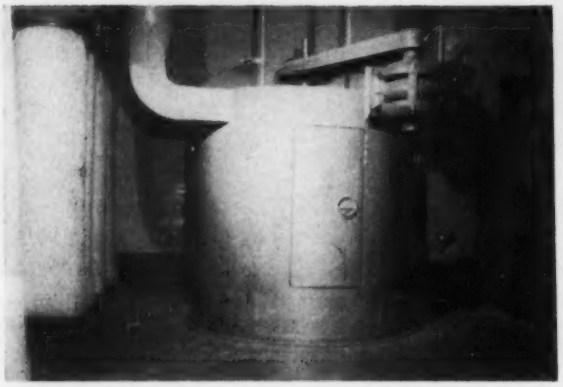
City sewage is not available; so the mill has a disposal system that can handle 35 gal. per min. The effluent, which is quite clean, drains into a small stream.

City water isn't available yet, either. White Horse has two driven wells that can pump 65 gal. per min. each. The 125-ft. elevated tank gives a head pressure of 55 psi. on the sprinkler system. An electric fire pump with a gasoline-driven stand-by can produce pressure of 100 psi. with the water from the larger ground tank.

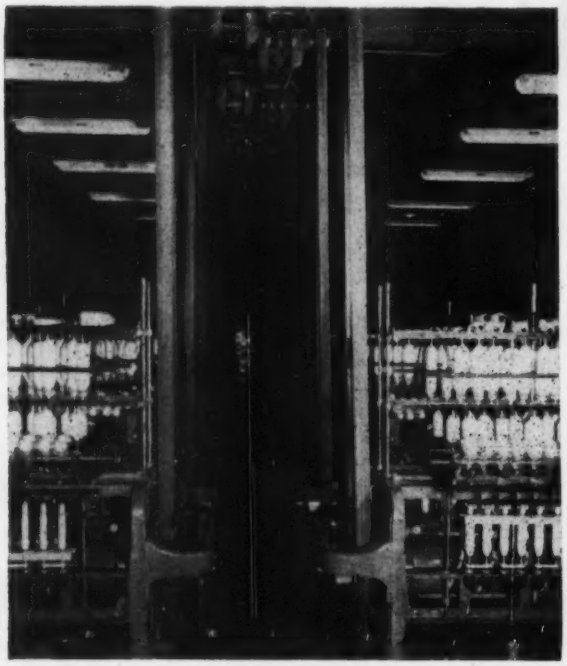
CAMERA TOUR STARTS ON NEXT PAGE——→

The South's Newest Cotton Mill *(Continued)*

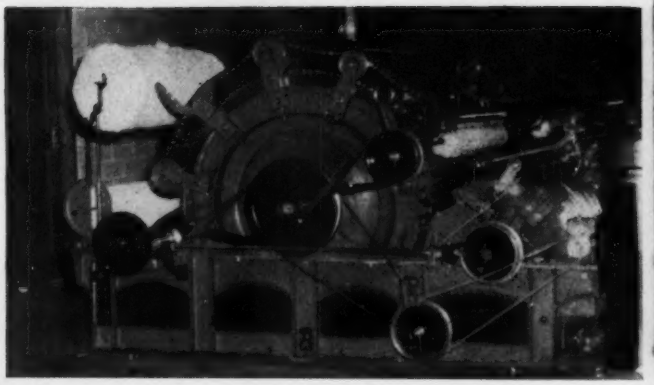
PROCESSING Features



VERTICAL OPENER was selected for the opening line because White Horse thinks that this machine does the best job on the cotton it uses —1 5/32-in. Middling, Delta. Four No. 7 feeders and a No. 11 condenser precede the vertical opener, and after it come two No. 11 condensers feeding a No. 12 opener. Return air is filterd in bags. Pickers are F-2's with two beaters in each line.

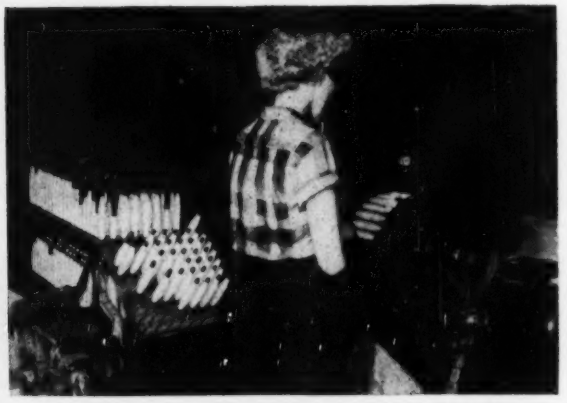


ENDLESS BELTS from individual motors drive the SS-2 warp spinning frames. Gauge is 3 in., ring is 1⅞ in., and traverse is 8 in. Spindle speed is 10,000 rpm., and front-roll speed is 102 rpm. Motors attached to the ceiling keep the heat up there, not around the frame, and sealed bearings minimize maintenance. There's a 2-ft. aisle between the guards, and the mill figures it saved 4 ft. between frames by putting the motors at the ceiling. Special guards on the frame pulleys make working conditions safer.

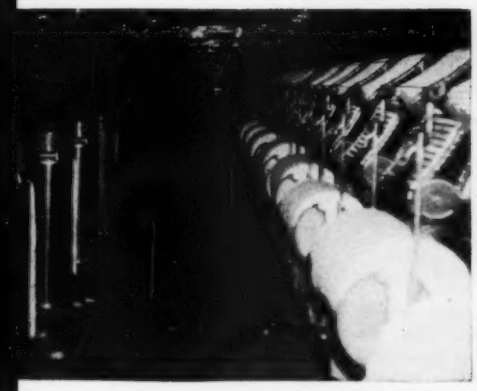


CARDS are 40 in., and there are 80 of them. Vacuum-stripping facilities were built in the floor. Track laid in the floor at the time of construction guides a truck with 14 cans down to the two 9-in. lap

FROM QUILLING, where there are three 162-head Abbott units, the bobbins are conveyed on pinboards directly to the weave room. Each conveyor section holds four pinboards. A section of roller conveyor (left) is used to store filling, and batteryhands load their trucks from this point. For warp preparation, White Horse has Barber-Colman spooling and warping. Note that suspended equipment traveling on monorails leaves floor uncluttered.

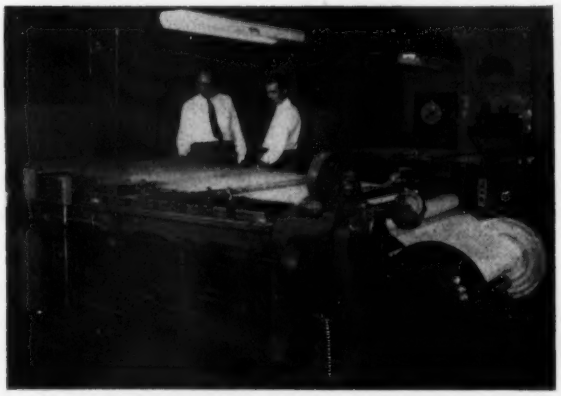


TO PROTECT THE FILLING, pinboards supply filling for the batteryhands at the looms. Barbara Underwood is one of five batteryhands who fill batteries from trucks. These trucks are the only equipment that travels on the floor—all else is by overhead monorail. Warp and filling tickets are slipped into a bracket that's bolted to the arch of the loom for easy visibility and for protection against grease and oil.



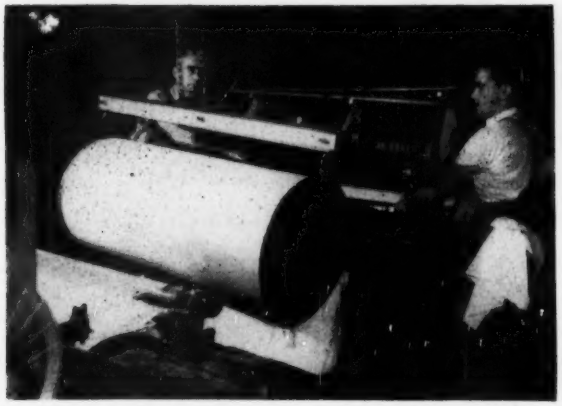
winders. There are six four-delivery, five-roll units of lap-back drawing followed by a 10½-in. lap winder.

VACUUM SYSTEM takes noils from the eight Model 50 combers. All machinery through spinning is Saco-Lowell but for eight 4-roll, 4-delivery Whitin draw frames after the combers. Roving frames (156-sp. FS-2) build 8x4 bobbins and have Shaw controlled draft.

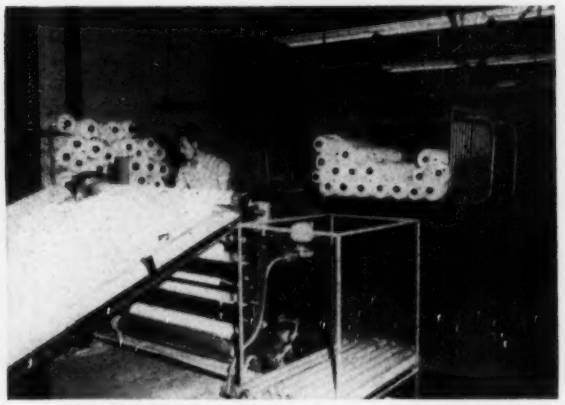


PLANT MANAGER H. W. Duguid (left) discusses slasher production with N. W. McCall, overseer of carding and spinning. The mill has two 5x7-ft. cotton slashers equipped with variable-speed drives and controls for moisture content, cylinder and size-box temperatures, and size level. The size, which is made largely from potato starch, is automatically cooked and is transported to the size box by a circulating system.

WEAVE-ROOM OVERSEER George C. Holman and F. A. Brown, head loomfixer, check in a new warp. The lever end binder is set to the shuttle with a plastic gauge. All 600 X-2 looms at White Horse are equipped with Diehl drives. Transmitter gears are repositioned every 7 to 8 mo. Bartlett let-offs are used because Mr. Holman thinks that they make more even cloth on his constructions than the let-offs usually used to weave all-cotton fabrics.



WARPS ARE CUT OUT when they run out, and drawn warps replace them. A Barber-Colman drawing-in machine is used. Harry Hicks and J. C. Guthrie hang the harnesses; then one man can lay in the warp with the aid of the overhead hoist. Eleven drawn warps can be stored in each of several racks at the side of the weave room. The overhead hoist removes the warps from the rack and takes them to the looms.

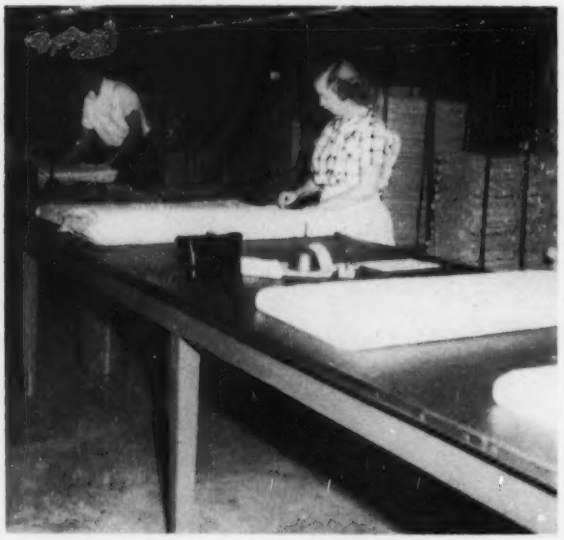


FIRST OPERATION in the cloth room is a run through the brushing and shearing machine. Cloth is removed from the same carrier on which the cloth doffer placed the roll in the weave room. Empty cloth rolls are put in a side rack on the carrier, ready for the cloth doffer once more when the monorail system takes them in the carrier back to the weave room.

PROCESSING Features

(Continued)

THESE INSPECTING MACHINES were designed by Maverick Mills. All cloth is 100% inspected after shearing, and strings are put in to mark defects. The all-steel machines are equipped with a variable-speed drive. Lighting level in the cloth room is 50 ft.-candles. After this inspection, the cloth is folded on 40-in. folders.

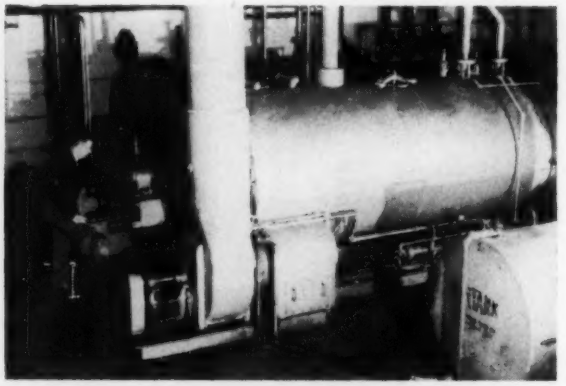


GRADING is done after folding. Girls do the grading, and a man lifts the cloth off the table and puts it in the proper skid to the rear to await packing. The full skids are moved to the press on a jack-lift truck. A bale press is used, and platform scales are built into the floor to make the weighing job easier on the employees and more efficient at the same time.

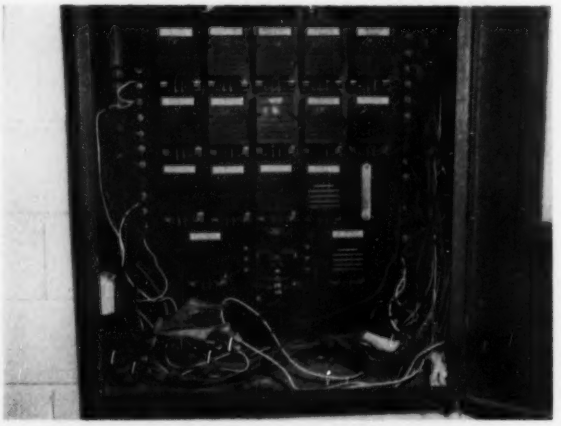
ENGINEERING Features

Lighting Levels are High

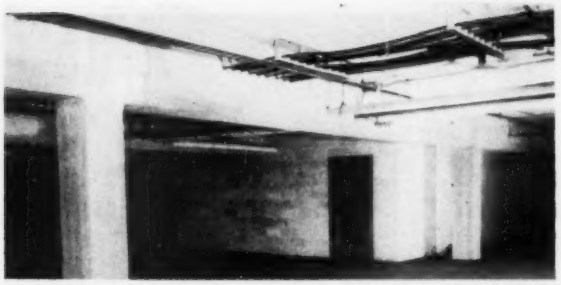
	(ft.-candles)
Opening and picking	15
Carding	20 to 25
Spinning	25
Warping, spooling, slashing	20 to 40
Weaving	45
Cloth room	50
Boiler room	10
Waste room	15
Supply room	30
Shipping	15
Machine shop	30
Corridors	15
Washrooms	10 to 15
Basement	10



ONCE A DAY, R. C. Kirkpatrick, master mechanic, checks stack temperature, oil temperature, flame, and protector relay. But outside of that check, the two 125-hp., 100-psi. boilers operate automatically. Average cold-weather consumption of No. 6 fuel is 600 gal. per 24 hr. Steam is used for slashing, yarn conditioning, and heating. Strainers and burners are cleaned daily. Oil-storage capacity is 25,000 gal.



FLOW-INDICATOR PANEL for the sprinkler systems shows up leaks immediately. If anything goes wrong—leak or fire—in any of the 13 separate sprinkler systems, a red light flashes, a bell rings, and a flag drops to tell the watchman not only that there's trouble but also where it is. A similar panel tells if anything is amiss with the air-conditioning system, boiler pressure, water pressure to the mill, etc.

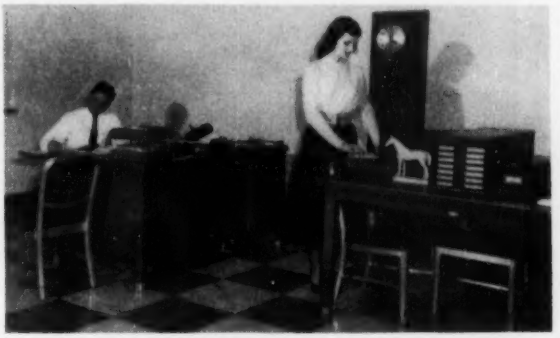


FULL BASEMENT has 7½-ft. clear headspace and is used for storage and services. Heavy supplies, raw cotton, and finished goods are stored down here. Piping and wiring are easily accessible. Eighteen separate air-conditioning units are located in the basement instead of on the roof. Doors in the background open on two of the conditioning units.

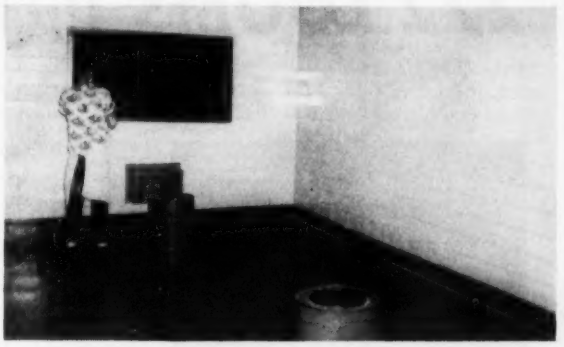
WASTE ROOM, designed by Maverick Mills, is a model. Bins are suspended from ceiling tracks and are rolled along the track to the upstroke press (rear) for baling. Bin size was determined by bulk of most common wastes—strips and noils. It takes about two bins to make one bale. Vacuum system sucks waste from combers, cards, and pickers to the condenser cylinder, which is emptied into a bin. One man bins and bales all the waste.

LITTLE MAINTENANCE is required for this lift truck because only two men drive it and maintenance rules are followed strictly. The truck is used for loading finished goods and unloading and storing cotton bales and other heavy supplies. There are three ways to get materials in and out of the basement—reversible belt conveyor, elevator, and fork-truck ramp. The fork truck is used most often.

PERSONNEL Features

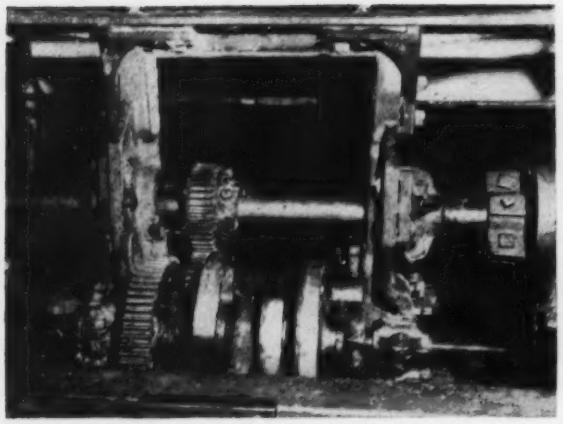


OFFICES are completely air conditioned and have rubber-tile floors and acoustical ceilings with flush fluorescent lighting. All furniture is metallic because this area is not sprinklered. D. W. Garrett is personnel manager, and Betty E. Griffin is the receptionist. To the rear is the IBM master clock that automatically signals all shift changes, smoking periods, and lunch periods. The white horse in the foreground is a familiar symbol around the mill.



SPOTLESS SMOKING ROOMS have glazed-tile walls and convenient disposal cans. All employees get two 7-min. breaks each shift for smoking and a 15-min. lunch period. A window in each smoking room makes it more pleasant and prevents any "closed-in" feeling. Corridors and washrooms have the same glazed-tile finish.

CANTEEN is completely equipped with dispensing machines for soft drinks, hot coffee, sandwiches, candy, and cigarettes. Only packaged food is available. There are no problems that arise when food is prepared, and this system is also quicker for the employees. There are no empty bottles to worry about in the canteen or in the mill. There's never an argument about jammed machines—management always supplies the coin for another try.



THE LOOM SPEED was increased 20 ppm. after the spreader was added to stabilize the crankshaft and camshaft.

CONSTANT LOOM SPEED was the result when this No. 11 Draper drive was installed on the 222 E-model looms.

How Exposition Cotton Mills Brought 222 LOOMS Up to Date

E. A. SATTERFIELD, head overhauler, shows how his men aligned the lays on the looms as part of the rebuilding program.

- **E-model looms in good mechanical condition couldn't be run economically because they were too slow**
- **Two things solved the problem: new drives to run the looms faster and spreaders to stabilize them at higher speeds**
- **Result: Speed increase from 150 ppm. to 170 ppm.**

By E. A. SATTERFIELD, Exposition Cotton Mills Co.

IN OUR MACHINERY-MODERNIZATION program at Exposition, we removed 222 40-in. E-model looms from production several months ago and replaced them with new looms. Our plans called for discarding the E-model looms, but we hated to do this because they were in excellent mechanical condition.

The new looms that we have added the past few years are wider than the looms that we have removed; and, in addition, our cloth styles on the new looms are woven from finer yarns than the cloth styles on the old looms. The wide-loom installation and the finer styles resulted in the carding and spinning of less yarns. We decided to keep the E-model looms, since we were able to supply the yarns to run them.

All our weave-room area was filled with looms, and we had to find a place to put the looms. Our machine shop made a basement in an unfinished area under the mill. The basement has a concrete floor and the floor above is supported by steel columns.

The E-model looms had been running at 150 ppm., but we felt that if we added spreaders and a new drive, we could increase the operating speed of the looms to 170 ppm.

How We Increased the Loom Speed

We have a crew of nine men and a foreman who work as an overhauling team all over our weave room. This crew did all the work in rebuilding the looms and putting them in production.

The looms were taken to an area in the basement where they were rebuilt and then were moved to the basement where they were placed in production. This rebuilding program was followed:

1. The looms were stripped of all shafts, the lay, let-off, take-up motion, and all small parts. The loom

sides, arch, and lengthwise girts were all left intact.

2. The loom and all the parts were thoroughly cleaned.

3. The loom frame was squared and leveled. Blocks were used under the loom feet to level the frame.

4. Draper spreaders were added to the loom frame and the spreaders were squared.

5. Worn camshaft bearings were replaced. An aligning camshaft was used to align the two main camshaft bearings so that the shaft would spin when it was turned by hand.

After the main camshaft bearings were aligned, the spreader bearings were added and aligned just as close as the main bearings.

6. The crankshaft bearings were also aligned with an aligning shaft. Here, again, new bearings were installed where they were needed.

7. The take-up roll and parts, the picking motion, the let-off, and other small parts were replaced. Most of these parts were in good condition and required little work.

8. The rocker shaft, lay swords, and lay were replaced.

9. The lay was carefully aligned with a 56-in. straightedge. The box backs were aligned to each other, and the reed was aligned 0.008 in. back of the straightedge and square to the box backs.

10. The crank arms were set with a gauge. The clearance between the box backs and the inside of the breast-beam is 4⅛ in. at the front-center position.

11. The hopper stand was replaced and set with a gauge. Then the battery was set. The shuttle size is 16½ x1⅛x1⅞ in. and runs an 8¾-in. bobbin.

12. A Draper No. 11 drive was added to the loom.

13. The looms were moved to the new weave room and leveled on mounting pads. They were rocked for 2 to 4 hr. while they were still empty and then were warped and prepared for starting up.

The looms were started at 170 ppm. and are still running satisfactorily at that speed. We think that we added just the right amount of strength to the looms when we equipped them with the Draper spreaders and the No. 11 drive. Any other parts that we might have added would have been wasted, since we reduced excessive vibration with the spreader and drive.

Some of the loomfixers on the rebuilt looms were taken from the overhauling crew.

Our cloth quality and production percentage on the rebuilt looms are still as good as were obtained before the looms were rebuilt.

AN EMULSION containing colloidal silica is applied with a spray device in front of the coiler head. The device sprays a controlled amount of emulsion on the sliver. The emulsion is evenly absorbed before the next operation.

Mills Use Colloidal Silica To Make Better Wool EMULSIONS

► Emulsions can be applied with a spray device before the coiler head. The addition of colloidal silica to these emulsions is said to give a better yarn, stronger and fuzz free.

EMULSIONS APPLIED TO WOOL or blends spun on the modified or American system reduce fly, increase yield, reduce fiber breakage, and control static. The Controlspray, made by Bachmann Uxbridge Worsted Corp., applies the emulsion before the coiler head on the first pin drafter. The emulsion on the inside of the sliver is absorbed evenly before the next process.

This action gives maximum distribution to the emulsion at a controlled rate and keeps the emulsion from getting on the machine parts. The system is said to reduce waste and faller laps.

Adding a colloidal silica to these emulsions is said to produce stronger, smoother, fuzz-free yarns. The processing of blends of synthetic fibers is improved because the colloidal silica produces the effect of wool-like serrations on the smooth synthetic fibers. Finer yarn numbers from the same stock or the same yarn numbers from cheaper stock can be spun, and the reduced twists per inch and lower end breakage increase production.

When properly applied, the emulsions are said to have no effect on faller pins or drafting rolls. The chemical inertness and minute particle size of the colloidal silica prevent corrosion or abrasion.

Make a Good Emulsion

A clean, stable emulsion is essential with any system. Proper formulations of oil, colloidal silica, tint, and penetrants will insure proper control and distribution, which in turn insure freedom from roll or faller laps.

The oil emulsion acts as a dispersing agent for the colloidal silica and prevents the contained moisture from drying out. A light, even film of emulsion eliminates the tendency to wet machine parts. The oil spreads and holds the silica particles on the surface of the fibers and prevents dusting off in following operations.

Oil, water, and additives such as identifying tints should be blended into a good emulsion; and then the colloidal silica should be poured, under agitation, into the mix. The amount of silica used will depend on the amount of emulsion applied, the type of stock, and whether a dry-combed or oil-combed top is used.

A typical emulsion used successfully on the American system with a two-part, dry-combed top is: one part colloidal silica (Monsanto's Syton), two parts oil, and six parts water. A total of 4½% emulsion by weight of fiber is applied.

Some mills on the older spinning systems are making a satisfactory application at the blending gill box, where there is a minimum of four ends at the creel. Half the ends run over a roll that distributes the emulsion from a constant-level tank, and these treated ends are run between the untreated ends. Contact of the oiled sliver with any machine part is prevented.

New Ideas and New Techniques Keep This DYEHOUSE MODERN

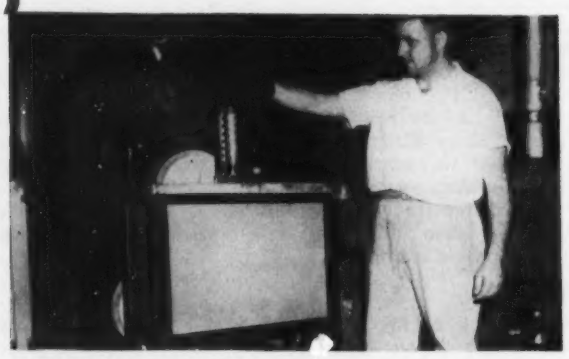
▶ By high-pressure dyeing of Dacron, Orlon, and other synthetics, Globe Dye Works gets deeper and faster shades —and saves on dyes and chemicals

▶ With a few odd dollars and a few old parts—plus ingenuity—a serviceable, labor-saving package former was built by the shop crew

By **GEORGE M. MOISSON**, Assistant Editor, TEXTILE WORLD

At Globe Dye Works Co., Philadelphia, a group of old buildings house some of the most modern machines in the dye business. With customers demanding colors on the new fibers and blends, the need for progressive thinking and modern engineering made itself known.

High-temperature dyeing is an everyday thing now for Dacron and Orlon yarn at the plant. Smith-



HIGH-TEMPERATURE SAMPLE SKEINS are dyed in this glycerine-bath machine.

At Globe, The Lab Keeps Ahead Of Production Needs

The laboratory has been very successful with shade matching for high-pressure dyeings since the glycerine-bath sample-dyeing machine was built. (From an Intersectional Contest Paper, Philadelphia Section, AATCC, 1948, entitled "Some Phases of High-Temperature Dyeing.")

Al Stutzke, laboratory man in charge of synthetics, is removing a sample tube from the machine in photo at left.

The sample dryer has been a big step-saver. Samples are clamped to, or held over, the hot-air ports until dry.

A flue and hood around the steam bath keep the laboratory cooler, and operators can stand close to their work without discomfort.

SKEIN DRYER built at Globe uses a steam coil and fan.

HOOD AND FLUE serve to keep this gas-heated steam bath cool.

Drum package-dyeing machines of 50-, 100-, and 500-lb. capacity have been converted for high-temperature dyeing.

One advantage already realized, according to Fred Traut, superintendent of processing, is dyestuff savings. Equivalent depths of shade on Dacron and Orlon are reached with chemical and dye savings of 25 to 35% by use of pressure dyeing, but the greatest benefit to the consumer comes from the better fastness obtained by the process.

Warp Dyeing Is a Big Item

The business of Globe has for years been a "custom dye service" that required versatility and adaptability. To keep the old customers happy, particularly the ones who still use dyed warps, a special warp-bleaching range was designed. On this range warps are bleached, washed, finished, and blued for the toweling and thread manufacturers. Much of this work is for export. Warp-dyeing equipment and winding machinery complete the facilities for this type of work.

Warp sizing for haircloth manufacturers and low-count singles warps is still a large item in the plant.

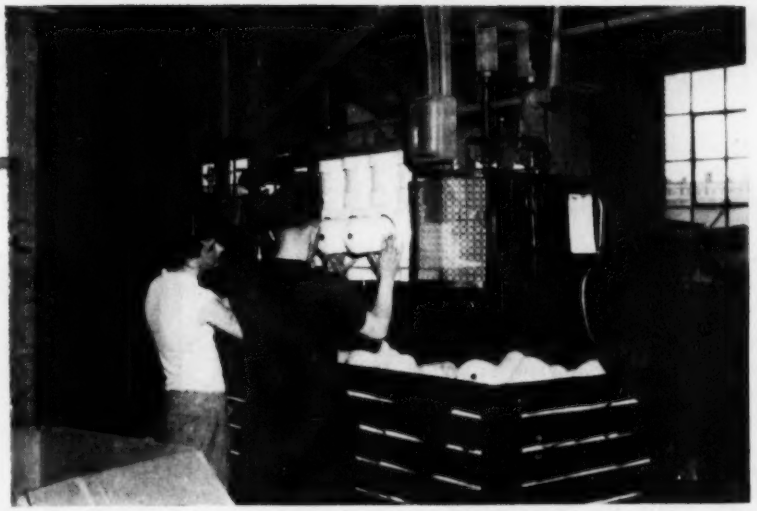
Skein Dyeing Holds Its Own

Another busy part of the dyehouse is the ribbon and tape bleaching and dyeing section. Hypochlorite bleaching is done in vats, dyeing in Klauder-Weldon machines.

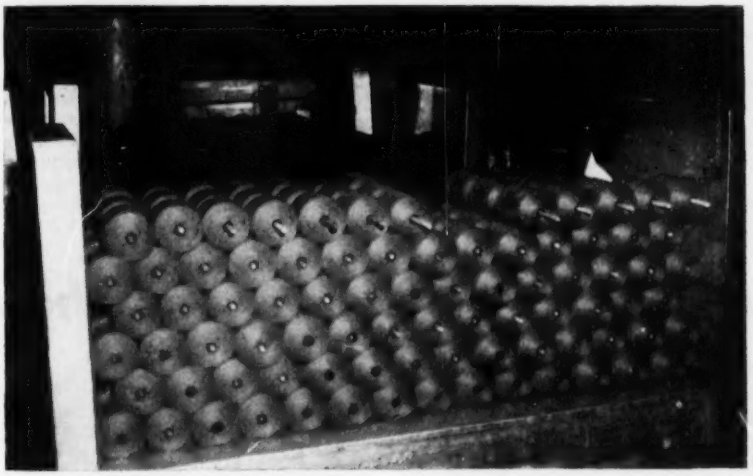
Smith-Drum cascade-type machines are used for dyeing filament and spun silk, fine-count spun synthetics, and synthetic filament decoration yarns for the woven-label trade.

The nature of the work at Globe is so diversified and exacting that a top-quality dyer must be on the job at all times. Winding and preparation departments are geared to provide for a one-shift dyehouse operation.

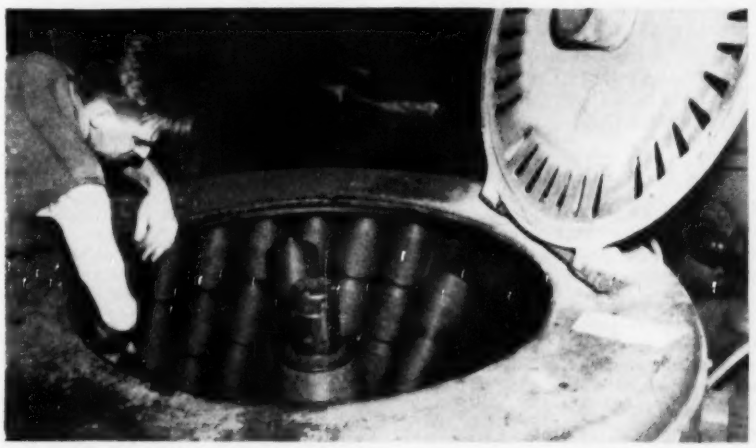
With such a fertile field for experimental work, machinery and dye manufacturers have made this dyehouse a testing ground for new equipment and techniques—and some of the things learned there have been of great help to the technology of synthetic-fiber dyeing.



PACKAGE-FORMING MACHINE, designed and built by Globe, forms four packages at a time at a high rate, hangs from the overhead, and uses no floor space.



WOODEN DOWELS HOLD PACKAGES, in groups of three, on a special truck built to carry yarn from dyeing machine to centrifugal extractors.



THREE DOWELED PACKAGES STACK neatly in a Fletcher 48-in. Whirlwind extractor. Handling is cut, time is saved, and dowels prevent collapse of fiber tubes.

New Techniques Revealed . . .

▶ Two-day session at Hotel Commodore in New York brings 400 leading textile scientists together to review past year's work and to consider future developments

▶ Highlights from three of the seven technical papers delivered are given below, as well as descriptions of the testing equipment seen by the textile public for the first time

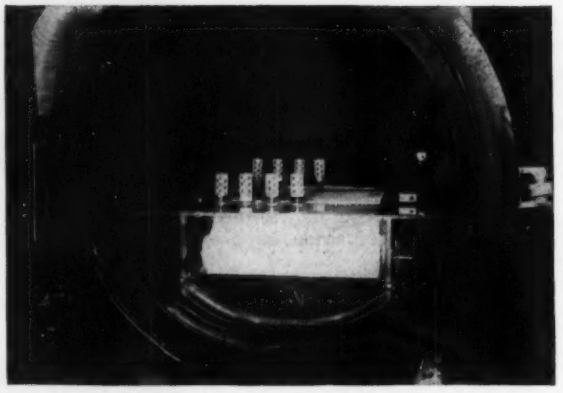
CLOTHING COMFORT Can Now Be Measured

By **ORVILLE C. WETMORE**, E. I. du Pont de Nemours & Co., Inc.

Fabric-comfort measurements are made in a chamber developed by Du Pont. Fabrics to be tested are sewn end to end and used in scroll form so that the chamber doesn't have to be reopened after tests start.

An electrically heated plate about 4 in. square, which serves as a simulated section of a human body, is located beneath the fabric between the two rolls. The fabric being tested is adjustable so that the plate can be either in contact with the fabric, as would be the case with tightly worn clothing, or as far as 2 in. away, simulating varied conditions.

Tests so far show that when a wool fabric is worn close to the skin, it gives the best insulation—an advantage in winter but disadvantage in summer. When a gap exists between the skin and fabric, however, the situation is reversed because of the greater porosity of the wool fabric.



Very little comfort difference between filament-nylon and cotton shirtings was found for any of the laboratory conditions.

The importance of air velocity and the gap between skin and fabric is recognized and will be studied further. Other factors, such as tactile qualities, may also be important in fabric comfort.

New Testing Equipment Shown

▶ Over a dozen manufacturers of laboratory equipment of advanced design exhibited testers and other apparatus in the West Ballroom of the Hotel Commodore during the two-day annual meeting

▶ Synthetic-fiber manufacturers who also took space included Carbide & Carbon Chemicals Co. (dynel), E. I. du Pont de Nemours & Co., Inc., (Dacron, Orlon, nylon, and rayon), Tennessee Eastman Co. (acetate, including Chromspun), and Virginia-Carolina Chemical Corp. (Vicara)

New TRI Officers

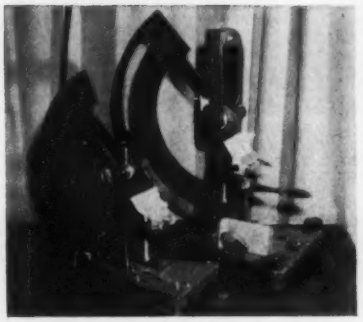
▶ New officers of Textile Research Institute for the year 1953 include:

President: PERCIVAL S. HOWE, president of American Thread Co., succeeding Andre Blumenthal.

Vice President and Executive-Committee Chairman: J. B. GOLDBERG, research director of J. P. Stevens & Co., succeeding Mr. Howe.

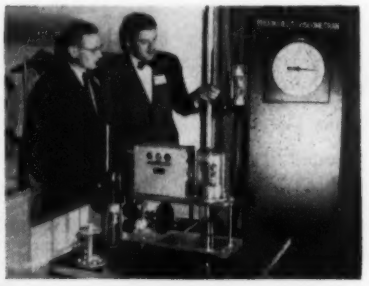
Treasurer: DONALD H. POWERS of Warner-Hudnut, Inc., re-elected.

Secretary: PAUL C. ALFORD, JR., of TRI, re-elected.



TEAR-MEASURING INSTRUMENTS, known as Elmendorf tear testers, have swinging pendulums that fall forward when released against the fabric sample. The greater the tear resistance inherent in the sample, the shorter the distance the pendulum swings forward before locking in its ratchet. The Elmendorf testers were exhibited by Thwing-Albert Instrument Co., Penn St. and Pulaski Ave., Philadelphia 44, Pa.

The smaller tear tester is designed for lighter-weight fabrics and coated materials for which tear resistance is as important as breaking strength. It can measure a maximum of 3,200-grams tear resistance. The larger tester is designed for use on tarpaulin and duck fabrics and has a capacity of 25,800 grams. The larger tester was originally developed for PQMD.



THE VISCOMETRAN, manufactured by Brookfield Engineering Co., 240 Cushing St., Stoughton, Mass., measures, records, and controls the viscosity of all types of warp sizing. A spindle hangs in the size itself from an extension dropped beneath the signaling element.

In the foreground is the Viscotrol, a viscosity controller for use in nylon throwing, where viscosity usually rises. Continuous and automatic viscosity control is obtained by means of contact disks and a solenoid-operated contact arm that is energized every 6 sec. to measure the angular relationship created by the viscosity of the sizing material in that area. Out-of-line relationships between the disks and the arm can close circuits in the control box, switch in lines, or control solenoid-operated valves, variable-speed drives, and temperature regulators.

. . . at TRI Annual Meeting

CREASE RESISTANCE Depends on Yarn Structure

By **REINER G. STOLL,** Celanese Corp. of America

More crease-resistant yarns and fabrics can be developed if textile scientists will continue to work (1) to reduce fiber deformation to 1 or 2% during yarn and fabric construction, (2) to see that the geometrical structure of woolen and worsted yarns is such that increased resistance to deformation is obtained, and (3) to utilize more convoluted yarns of the Helanca and Textralized type so that internal yarn tensions can be relieved in fabrics.

Lowering of the strain level, then, is the most important factor in reducing fiber deformation, no matter what the fiber.

The three inherent factors that cause the trouble are tensional resistance, compressional resistance, and crease (resilience) resistance. Resilience is the quality of resistance to and recovery from indiscriminate bending, folding, and creasing and the ability to retain desired creasing.

Minimum friction between fibers is important for obtaining crease resistance. Therefore a round fiber (and yarn) appears to give good crease resistance because it is smooth and is comparatively unaffected by friction.

To aid technicians working with crease resistance, a new wrinkle tester has been designed to produce complex wrinkle patterns under controlled conditions. [See page 124 for a description of the wrinkle tester].

New FRENCH RAYON Has Improved Properties

By **NICHOLAS B. DRISCH** and **LEONARD SOEP**
Comptoir des Textiles Artificiels

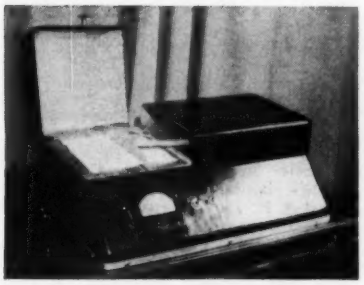
A new high-tenacity rayon yarn, called Yarn BX, has been developed by Comptoir des Textiles Artificiels in France. It has satisfactory dimensional stability and loop tenacity and very high wrinkle resistance. Dyeing, printing, and crease-resistant applications present no difficulty, and print fabrics as light as 1½ oz. per sq. yd. are already being made. Hand is silky.

Basis of the improved rayon process is stretch-spinning of filtered high-DP cellulose-xanthate dispersions in strong sulfuric acid.

The sulfuric acid acts as a coagulating bath and plasticizer. Care is taken to avoid heterogeneous depolymerization during processing. Instead, the homogeneous orientation of fiber molecules is provided for on a rectilinear basis. The resultant fiber is neither thermoplastic nor hydrophilic.

Yarns have so far been made in 15-, 40-, 60-, and 100-den. sizes. The 40-den. yarns have a breaking strength of 150 grams. Lighter yarns for stronger fabrics can thus be used than are ordinarily considered for specific end uses.

Because of the fairly high cost of regenerating the sulfuric acid for use again as the coagulating bath, the cost of the new-type rayon is not low. Experimental quantities of the fiber are available for American mills.



HAND-EVALUATING INSTRUMENT of simple design and construction was on display at the booth of Thwing-Albert Instrument Co., Penn St. and Pulaski Ave., Philadelphia 44, Pa.

The important part of the tester is the slot that can be seen in part under the above sample. The arm suspended above the slot descends slowly and forces the sample into the slot. The resistance set up against the arm by the fabric sample before it enters the slot is shown in grams on the dial in front. The ordinary dial range is from 0 to 50 grams.

A synchronous motor operates the arm, or "beam," at a constant rate of speed. Consequently, increases in fabric-sample weight or resin treatments or finishes are shown as increasingly higher readings on the dial scale.

ELECTRO-HYDRAULIC STRAIN-GAUGE TESTER for yarn and fabric strength tests was shown by Thwing-Albert Instrument Co., Penn St. and Pulaski Ave., Philadelphia 44, Pa. Rate of pull can be changed from 0.02 to more than 25 in. per min. Chart range is easily varied from a minimum of 2 grams to a maximum of 10,000 lb. by means of simple changes.

The tester has adjustable gauge lengths to meet standard mill requirements and can load and unload automatically just under the yarn or fabric breaking point to give fatigue tests.

MAGNIFICATION of 10 and 20 times is possible for yarn and fabric studies with the Swiss optical instrument and yarn counter, Projectina, which was on display in two models at the booth of Sjostrom Machine Co., 15 Union St., Lawrence, Mass. Later models are expected to provide magnification up to 400 times.

The instrument is equipped with switches for lights to be turned on the sample from the top, bottom, and any position on the side by means of the movable arm seen at the left. Projections on the graduated ground-glass screen are provided for in inches and fractions of an inch.

Microscopic examination of the same sample is possible by exchanging the screen for an ocular and reticle that are also available from Sjostrom.

New Testing Equipment *(continued)*

EXPERIMENTAL MODEL of the universal Extensometer (arrow) on the strength tester shown by Instron Engineering Corp., 2 Hancock St., Quincy, Mass., provides for the direct measuring of extension between the two gauge points of a sample. Contact on a specimen is followed by means of a servo drive that operates each of the two feeler mechanisms without the sample itself having to supply any force to move the Extensometer. The difference in the position of the feeler mechanisms is made to operate the chart of an XY recorder (at left, not shown).

Load-elongation curves can be made on yarns, plastic films, dumb-bell-shaped samples, and specimens requiring the use of capstan-type jaws.

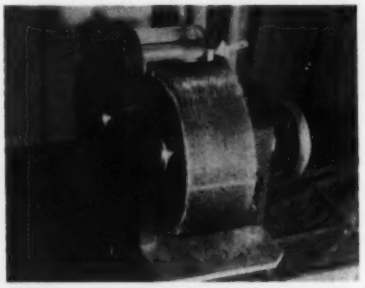
OPTICAL ZERO ADJUSTMENT (arrow) is a new feature of the semiautomatic moisture tester exhibited by Brabender Corp., Rochelle Park, N. J. It works in conjunction with the illuminated dial that gives moisture content directly from 0.1 to 100%. By means of one knob it keeps the tester level at all times.

Only one weighing of the sample is necessary—that being done on the weighing-in scale at the right, which gives the sample size. Weighing is fast, being done on the plus-or-minus principle.

Other components of the moisture tester include a temperature control at the top; the cylindrical, insulated, vented 750-w. electric oven; and the encased analytical-balance mechanism, accurate to ± 0.002 grams.

ELECTRONIC MOISTURE REGISTERS were displayed by Osgood Engineering Co., 110 Pleasant St., Boston 48 (Malden Sta.), Mass., the New York and New England sales agents for the manufacturer, Moisture Register Co. of Alhambra, Calif. They included Model PD-1 for compressible-stock use and Model K2 (foreground) for package-yarn and cloth-roll moisture testing. Readings are given directly on the dial. A variety of ranges is possible.

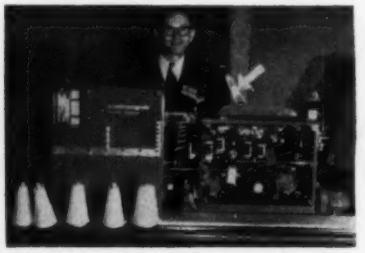
The instruments are powered by a 15-v. battery pack with an average life of 6 mo. Price of the testers is $195, with a $20 charge for extra calibrations after purchase, and a $3.50 charge for each replacement battery.



LIGHTER-WEIGHT FEED component (arrow) of the laboratory-size mechanical cotton blender originally developed by the U. S. Dept. of Agriculture was a new feature of the sample blender shown by Custom Scientific Instruments, Inc., 541 Devon St., Arlington, N. J.

The feed roll is made of aluminum and the feed plate of plastic. The two are also placed farther back behind the blending cylinder so that a backward push against a spring is all that is necessary to separate the feed and the cylinder, instead of the upward push against gravity that was formerly needed. The cylinder surface is clothed with regular stripper clothing.

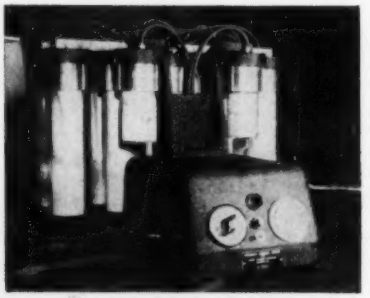
Samples 10 grams in weight can be blended in one-twentieth the time it takes to blend by hand.



SELECTED ENDS to be tested simultaneously for strength and elongation are taken by the revolving arm of the Autodinamograph (arrow) and placed into position between two open clamps. The right clamp starts pulling outward and sends an "elongation" pen slowly down the recording chart. At the same time the "strength" pen works up from the bottom of the same chart until the end breaks. The loose yarn is wound away on a felted roll as the two clamps return to their original position for the next test.

Ten tests are made from each yarn package, and then the next cone or bobbin is selected automatically by the selector arm.

The Italian-made yarn tester-recorder was shown by Victor Saxl of Stellite American Corp., 60 E. 42nd St., New York 17, N. Y.



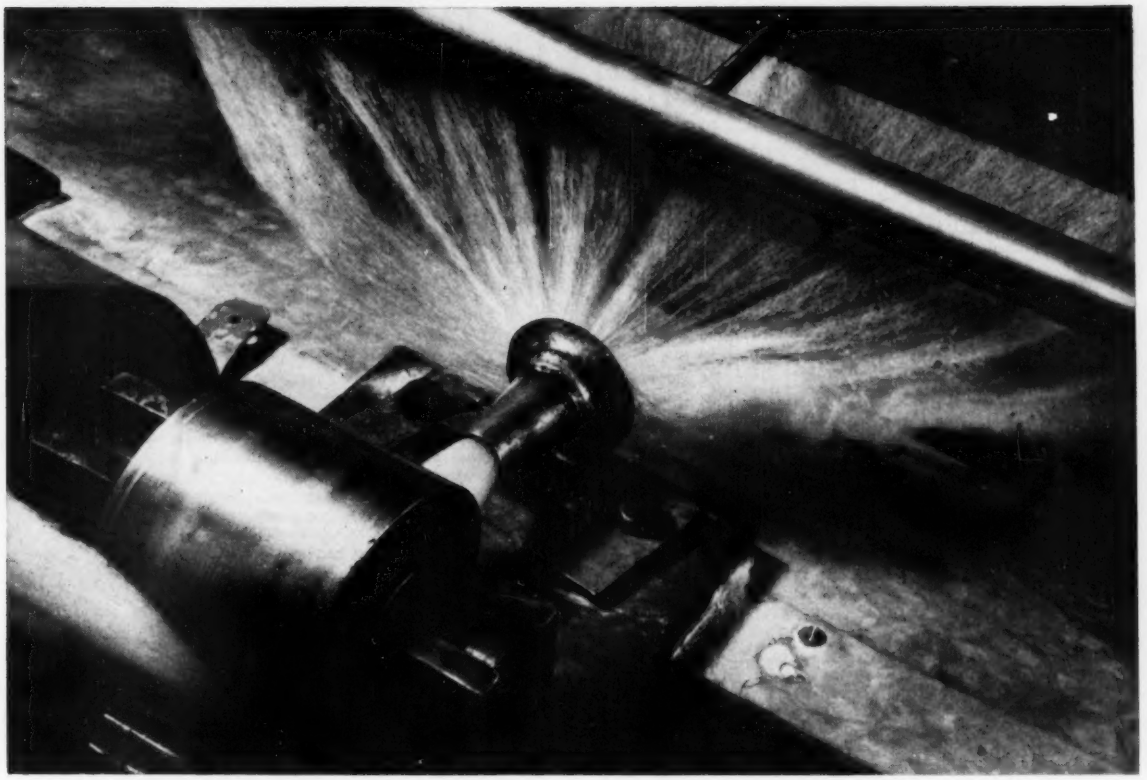
CELANESE WRINKLE TESTER, invented by Dr. Reiner Stoll, was displayed by Custom Scientific Instruments, Inc., 541 Devon St., Arlington, N. J. Ten tests can be made at one time on the instrument.

Fabric samples, usually 12x12 in., are suspended in tubes made of Plexiglas and fitted with a rubber diaphragm. A small pump forces air into five of the containers, and the fabric is allowed to relax 1, 2½, or 5 min.

The second cycle is then set in motion. A vacuum is formed in the five tubes with the aid of solenoid valves, and the rubber diaphragms collapse tight around the fabric for 1, 2½, or 5 min. The opposite-number tubes have their diaphragms inflated. Each row of tubes thus alternates.

Besides a pump, the front part of the instrument has a timer and a humidifying element. The two front tubes are moisture controls, one containing wet cotton as a moisture source and the other a filtering medium.

The tester puts randomized wrinkles in the fabrics under controlled conditions. Ordinarily the tested fabrics can be evaluated comparatively by the human eye with a high degree of accuracy.



ARDIL BLENDED WITH WOOL in a 50-50 combination looks like this as it comes off the wool-card doffer.

ARDIL Protein Fiber Blends Best With Wool

- Peanut-meal-solution fiber is not so strong as wool and not so elastic
- But it is resilient and warm and can be extruded fine enough to mix with finest merino wools
- The fiber dyes like wool and can also be knitted

1 What is Ardil? A protein fiber. The word "Ardil" is a registered trade name and is the property of Imperial Chemical Industries Ltd.

2 What is Ardil fiber made from? Ardil is made from the protein of peanuts—what the British call ground nuts.

3 What was the main difficulty to be solved before Ardil could be brought out commercially? The principal problem was to make a fiber resistant to dyeing, washing, etc. I. C. I. developed such a process.

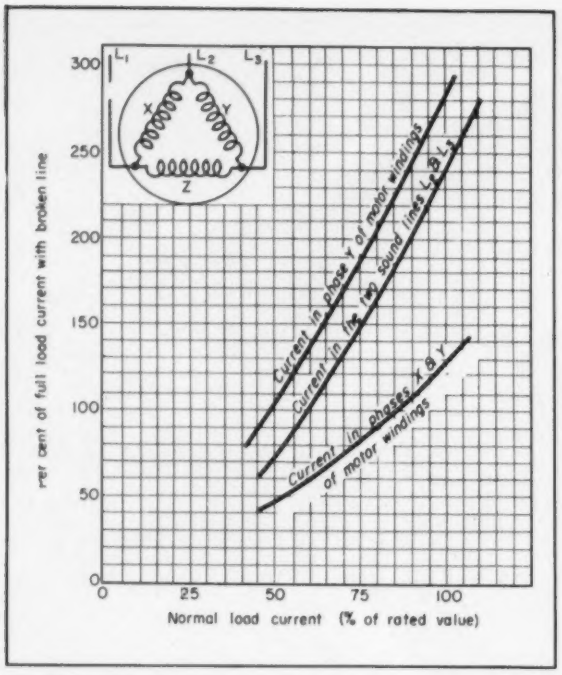
4 What is the manufacturing process? Peanut meal is about 50% protein, and this meal is the starting material for Ardil fiber. The protein is dissolved out of the peanut meal with dilute alkali and the solution filtered off. The undissolved part of the meal is recovered and is a valuable cattle food. The protein solution is then acidified, and the soluble impurities are filtered off. The solid protein obtained is dissolved in dilute caustic soda and is then extruded through spinnerets with very fine holes into an acid coagulating bath. After special treatment with formaldehyde, it is washed and dried.

5 Will Ardil be used alone? No, it will be used in blends with other fibers and will be supplied in staple form. In this way it can impart to the finished cloths its own special qualities.

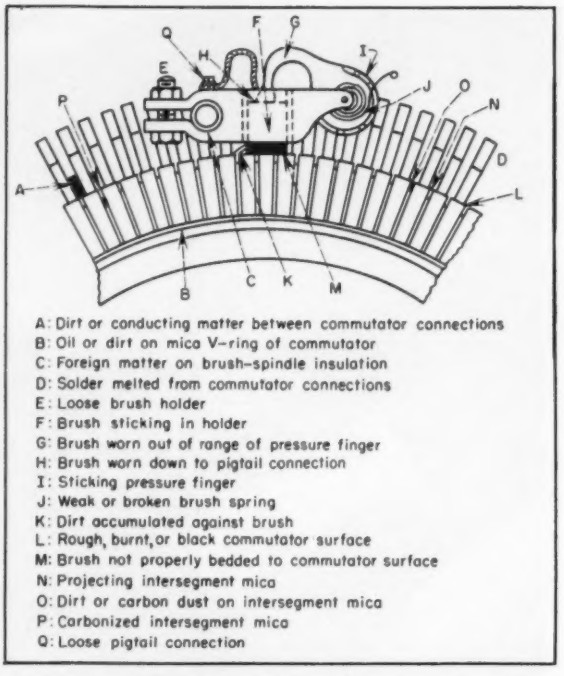
6 What fibers will it be used with? Ardil will be blended with wool on both the woolen and worsted systems and also with cotton and with viscose staple on the cotton system. It will also probably be blended with nylon, Terylene, Dacron, and acetate.

7 Which fiber does Ardil most resemble? Wool. Ardil fiber is, however, not so strong as wool and not so elastic. Nevertheless, it is a resilient fiber and is more elastic than cellulose fiber. It is complementary to wool and has wool's warmth and moisture-absorption. It can be made fine enough to mix with the finest merino wools.

(*Continued on page 224*)



A BROKEN CURRENT LINE causes single-phasing in a Delta-connected motor. Loss of current from a broken line is shown in the graph.


A: Dirt or conducting matter between commutator connections
B: Oil or dirt on mica V-ring of commutator
C: Foreign matter on brush-spindle insulation
D: Solder melted from commutator connections
E: Loose brush holder
F: Brush sticking in holder
G: Brush worn out of range of pressure finger
H: Brush worn down to pigtail connection
I: Sticking pressure finger
J: Weak or broken brush spring
K: Dirt accumulated against brush
L: Rough, burnt, or black commutator surface
M: Brush not properly bedded to commutator surface
N: Projecting intersegment mica
O: Dirt or carbon dust on intersegment mica
P: Carbonized intersegment mica
Q: Loose pigtail connection

THE COMMUTATOR and the points of possible trouble are explained in this diagram. Point A demonstrates a building up of foreign matter between the commutator connections.

How To Take Care of ELECTRIC MOTORS

▶ A motor that receives regular attention will always be in good mechanical condition. Maintenance tips given by the author are—

- **Gauge all moving parts of the motor for wear**
- **Reface worn commutators in a lathe**
- **Rebore and bush housings**
- **Check the motors and windings for overheating**
- **Test the winding current for overloading**

By J. L. WATTS

MOST OF THE BREAKDOWNS that occur on electric motors can be avoided if the motors are systematically maintained. The regular inspection of motors and the correction of minor defects will prevent major troubles.

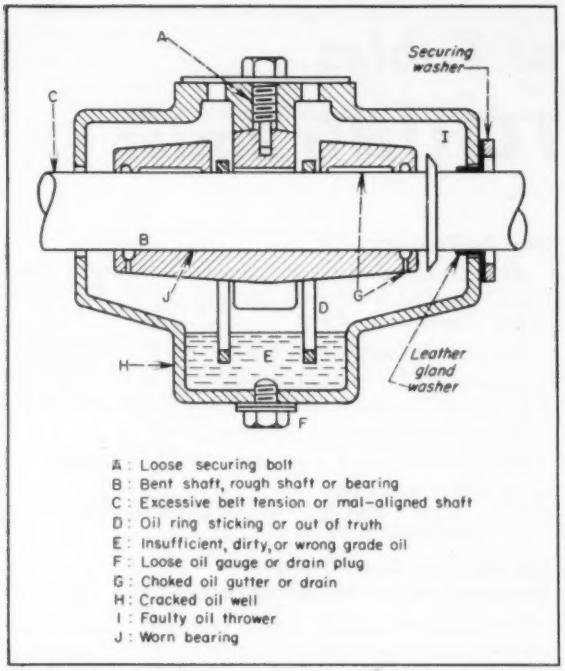
1. Motor Bearings

The only parts of the squirrel-cage a.c. motor that wear are the bearings. Under proper conditions, a ball or roller bearing that has been properly fitted should run for years with negligible wear. The main function of the lubricating grease in these bearings is to protect the highly finished bearing surfaces from corrosion, grit, or other foreign matter that may damage them.

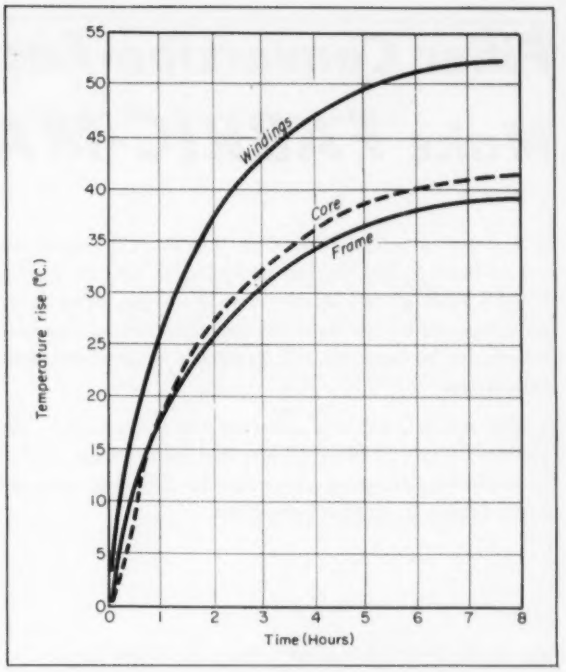
Lubricators fitted to ball or roller bearings may be used to apply a small quantity of grease to the bearings about every two months. If excessive grease is forced into the grease fitting, the bearing will overheat and the grease will melt and run out of the bearing. Lubricating grease having a high melting temperature should be used in motors that operate in hot positions. The old grease should be washed from the bearings every two or three years; following the cleaning, the bearings should be repacked with new grease. This procedure is particularly advisable for motors running in places where there is a lot of dirt or grit.

The radial air-gap clearance between the rotor and stator of a small induction motor is often only a few thousandths of an inch, and a small amount of bearing wear may allow the rotor to rub on the stator and the windings will be burned out.

Often a faulty ball or roller bearing



THIS SLEEVE BEARING has a leather gland washer that prevents leakage of oil into the windings. From *A* to *J* are listed possible trouble points that should receive attention.



THE TEMPERATURE of a small enclosed induction motor should level off after 8 hr. The windings, core, and frame each have a different temperature.

advertises itself by running noisily. If a noisy bearing is not silenced by the addition of grease, it should be opened up for examination at the first opportunity.

CHECK BEARING WEAR. It is wise to check the amount of wear on motor bearings periodically. The frequency of checking depends on how much the motor is used. On a belt drive, the belt can be slipped off the pulley and the motor shaft leveled in its bearings for the radial play to be estimated. In some applications, the wear of a sleeve bearing can be measured by inserting feeler gauges directly between the shaft and bearing.

In other motors, the radial air-gap clearance between the rotor and stator cores, or between the armature and field poles, may be measured by passing long feeler gauges through holes in the motor-end shields and through the air gap between the cores. The measurement should be made at three or four points around the rotor and recorded for comparison with those obtained on other occasions.

By comparison with previous measurements it is possible to ascertain the amount of wear that has occurred in a given period. By closely observing the measurements, an estimate of the safe limit of wear can be made.

Care must be taken in interpreting the air-gap measurements in a motor that has a vertical belt drive. The bearings of such a motor may possibly be worn on the top, and this wear may not be indicated by air-gap measurements if the shaft rests on the bottom of the bearings when the motor is stopped.

CAUSES OF WEAR. Alteration of radial air-gap measurements over a period of time may be due to wear of the bearings, shaft, or bearing housing. This wear may result from a rotor core that is not truly circular, a motor shaft that is bent, or a deposit of dirt or other foreign matter on the cores. A check may be made by repeating the air-gap-clearance measurements with the rotor turned around to a new position.

Metal that has been worn from a shaft or a bearing housing can often be replaced by welding and then machining the part to size. As an alternative, a worn bearing housing may be bored out for the fitting of a suitable bushing. It is usual practice for the inner race of a ball or roller bearing to be a press fit on the shaft and the outer race to be a hand fit in its housing.

Vibration creates excessive stresses on ball bearings; for this reason, motors should be firmly mounted. Antivibration mountings may be advisable on certain machines.

(*Continued on page 204*)

Hp.	Approx. Full Load (Amps.)		
	220 Volts	440 Volts	550 Volts
0.5	1 6	0.8	0.6
1	3.2	1.6	1.3
2	6	3	2.4
3	9	4.5	3.6
4	12	6	4.8
5	15	7.5	6
6	18	9	7.2
7	20	10	8
7.5	21	10.5	8.5
8	22	11	8.8
9	35	12.5	10
10	27	13.5	10.8
12	32	16	12.6
12.5	33	16.5	13.2
15	40	20	16
20	52	26	20
25	64	32	26
30	76	38	30
35	90	45	36
40	106	53	42
45	116	58	56
50	126	63	50
55	138	69	55
60	150	75	60
65	160	80	64
70	174	87	70
75	182	91	73
80	194	97	77
85	204	102	81
90	210	105	84
95	222	111	89
100	234	117	94

APPROXIMATE FULL-LOAD CURRENTS of three-phase motors.

Fiber Conversion-Factor Tables Make FABRIC-MATCHING Easier

• A previous article (TW, Oct. '52, p. 113) introduced the all-fiber system for the designing of fabrics. It provided a table of comparative yarn diameters and a table on comparative fiber densities and conventional diameter factors to be used by mill designers to short-cut their calculations.

• This month a table is given on the conversion to the all-fiber system of other factors that must be considered in multifiber designing. Formulas for figuring compact cover factors in all fibers are given.

By J. B. DICKSON, Textile Div., U. S. Rubber Co.

A MILL DESIGNER using some unit other than cotton yarn numbers in his daily work will want to set up comparative various-factor numerical values. He can start with the tables given on pages 114 and 115 of the October issue of TEXTILE WORLD for conversion from the cotton yarn-numbering system.

Let us take an example and assume that the designer's fiber is wool and that worsted count is his unit of yarn size. He will then want to know the numerical value of the conventional compact cover factor, K*, in (wool: worsted count).

Now, if he is designing for wool blends (that is, for a change in kind of fiber), he will want the numerical value of the cover factor in (all fiber: worsted count) so that he can later convert this factor into the specific blend (or even a 100% different-fiber fabric) that he is designing for, such as (blend: worsted count) or, say, (Orlon: worsted count).

If his design is to be based on a fabric with yarn numbers in some other system (cotton count, for example) and the cover factors are known in that yarn-numbering system, the designer will want to convert into (all-fiber: worsted count). Details on this procedure are given below.

If, however, the designer has only data on one fabric, which he is copying, the simplest procedure is to convert from cotton count into worsted count and to proceed accordingly.

It should be kept in mind that in converting from cotton yarn numbering to another system of yarn numbering, the compact cover factor (intended to give the same fabric cover, regardless of fiber) may be written as:

$$\text{Cotton Count} = m \times N \text{ (reciprocal units)}$$

or

$$\text{Cotton Count} = m/H \text{ (direct units)}$$

where m is a conversion constant. Then, in any formula where cotton yarn numbering occurs, the equivalent in another system of yarn numbering is inserted and a new value for the compact cover factor computed.

How To Convert

As a numerical example, suppose the compact cover factor is wanted in (all-fiber: worsted count). The fundamental equation is:

$$\text{(all-fiber: cotton count) } k^a_d = 0.0438 = d\sqrt{D}\sqrt{\text{cotton count}}$$

Substituting for cotton count the equivalent in worsted count (cotton count = 0.6667 x worsted count), we see that

$$\text{(all-fiber: cotton count) } k^a_d = 0.0438 = d\sqrt{D} \times \sqrt{0.6667 \times \text{worsted count}} = 0.8165\, d\sqrt{D}\sqrt{\text{worsted count}}$$

So, as a result, we see that

$$\text{(all-fiber: worsted count) } k^a_d = d\sqrt{D}\sqrt{\text{worsted count}} = 0.0438/0.8165 = 0.0536$$

The Compact Cover Factor— Reciprocal of the Diameter Factor

From the above conversion factor, we see that

$$\text{(all-fiber: worsted count) } K^{*a} = 1/0.0536 = 18.7$$

The compact cover factor in (wool: worsted count) may be computed as follows (from Table 2 on page 115 of the October issue):

$$\text{(for wool, D = 1.32, } \sqrt{D} = 1.149$$

$$\text{(wool: worsted count) } k_d = d\sqrt{\text{worsted count}} = 0.536/1.149 = 0.0466$$

$$\text{(wool: worsted count) } K^* = 1/0.0466 = 21.5$$

or more simply, since

$$\frac{\text{(given fiber) } K^*}{\text{(all-fiber) } K^{*a}} = \frac{1/k^a_d}{1/k_d} = \frac{k_d}{k^a_d} = \frac{k^a_d/\sqrt{D}}{k^a_d} = \frac{1}{\sqrt{D}}$$

we see that $K^* = \sqrt{D} \times K^{*a}$

In other words, the compact cover factor for a given fiber is the compact all-fiber cover factor multiplied by the square root of the fiber density, as in the example:

$$\text{(wool: worsted count) } K^* = 1.149 \times 18.7 = 21.5$$

Conversion Table

Table 3 on page 129 is convenient for converting factors from one system of yarn numbering to another.

For selected units of yarn size, the first column gives the name of the unit of yarn size. The second column gives the conversion factor into cotton count. The third column gives its square root. The fourth column gives the all-fiber compact cover factor. The last column gives the definition of the unit of yarn size.

Table 2 on fiber densities (TW, Oct., '52, p. 115) and this Table 3, used together, provide therefore for conversion of various textile factors into a given kind of fiber, expressed in a given unit of yarn size. First you determine what your new fiber density should be, and then you convert what you need into a new yarn number in a different yarn-numbering system.

Conversion Problems Quickly Solved

The following problems and their solutions illustrate the uses to which Tables 2 and 3 can be put:

Problem 1. What is the conventional diameter factor for wool fiber when yarn size is in worsted count?

Problem 2. What is the (wool: worsted count) compact cover factor?

Table 3
Conversion of All-Fiber Factors From Cotton to Other-System Yarn Numbers

[Basic equation: (all-fiber: cotton count) $k^a_d = 0.0438 = d\sqrt{D}\sqrt{\text{cotton yarn no.}}$]

Units (N) in which All-Fiber Factors are wanted[1]	Conversion Factor of Yarn Number[2] m	$\sqrt{m}$	All-Fiber Diameter Factor[3] $K^a_d = 0.0438/\sqrt{m}$	All-Fiber Compact Cover Factor[4] $K^*_a = 1/k^a_d$	Units for Yarn Numbering (Number of:)
Cotton Yarn No.	1	1	0.0438	22.8	840-yd. hanks per lb.
Worsted Yarn No.	0.6667*	0.8165	0.05364	18.6	560-yd. hanks per lb.
Woolen Cut (Am.)	0.3571	0.5976	0.07329	13.6	300-yd. cuts per lb.
Woolen Run (Am.)	1.905	1.380	0.03174	31.5	1600-yd. runs per lb.
Woolen Yorkshire	0.3048	0.5421	0.08080	12.4	256-yd. skeins per lb.
Linen (wet spun)	0.3571	0.5976	0.07329	13.6	300-yd. cuts per lb.
Asbestos Cut	0.1190	0.3450	0.12696	7.88	100-yd. cuts per lb.
Metric Count	0.5905	0.7684	0.05700	17.5	kilometer hanks per kilogram, or 496-yd. hanks per lb.
Typp	1.190	1.091	0.04015	24.9	1000-yd. lengths per lb.

[1] Reciprocal systems of yarn numbering (length per unit weight)
[2] Cotton yarn number = m X N; m = conversion factor
[3] (all-fiber: cotton count) $k^a_d = d\sqrt{D}\sqrt{m \times N}$
[4] (all-fiber: given unit N) $k^a_d = d\sqrt{D}\sqrt{N} = 0.0438/\sqrt{m}$
* Second line for conversion, for example, is read: "Cotton yarn number equals 0.6667 X worsted count."

Units (H) in which All-Fiber Factors are wanted[5]	Conversion Factor of Yarn Number[6] m	$\sqrt{m}$	All-Fiber Diameter Factor[7] $K^a_d = 0.0438/\sqrt{m}$	All-Fiber Compact Cover Factor[8] $K^*_a = 1/k^a_d$	Units for Yarn Numbering (Number of:)
Denier	5315†	72.90	0.000601	1664	grams per 9,000 meters
Grex	5905	76.84	0.000570	1754	grams per 1,000 meters
Linen (dry spun)	17.15	4.141	0.010577	94.5	lb. per 14,400-yd. spyndle
Woolen (Am. grain)	166.7	12.91	0.003393	294.7	grains per 20 yd.

[5] Direct systems of yarn numbering (weight per unit length)
[6] Cotton yarn number = m/H; m = conversion factor
[7] (all-fiber: cotton count) $k^a_d = d\sqrt{D}\sqrt{m/H}$
[8] (all-fiber: given unit H) $k^a_d = d\sqrt{D}/\sqrt{H} = 0.0438\sqrt{m}$
† Line for "denier" is read: "Cotton yarn number equals 5 315 divided by denier."

Problem 3. What is the (viscose: denier) diameter factor?

Problem 4. What is the (viscose: denier) compact cover factor?

The following shows how the answers are obtained:

Prob.	Wanted	From Table 3		From Table 2 $\sqrt{D}$	Answers
1	(wool: worsted count) k^d	$k^a_d = 0.0536$	÷	1.149	= 0.0466
2	(wool: worsted count) K^*	$K^*_a = 18.7$	X	1.149	= 21.5
3	(viscose: denier) k_d	$k^a_d = 0.000601$	÷	1.233	= 0.000487
4	(viscose: denier) K^*	$K^*_a = 1664$	X	1.233	= 2052

When K^*, the compact cover factor, has been computed for any combination of (given fiber: given unit of yarn size), the conversion factor for one system into another may be simply computed by a ratio:

$$\frac{K_1}{K_2} = \frac{K^*_1}{K^*_2}$$

Therefore:

$$K_1 = \frac{K^*_1}{K^*_2} \times K_2$$

Using this formula, we see that the conversion factor for (all-fiber: cotton count) into (wool: worsted count) is

All-Fiber Formulas Make Allowances for Other Factors That Affect Final Design

The yarn-diameter factor in the all-fiber system has already been considered in detail. Other such factors are twist multipliers, cover factors, cloth-cover factors, and yarn-number balance.

The formulas for these factors in the usual system (which disregards fiber density) and in the all-fiber system (which takes fiber density into account) are compared below as regards yarn number. Both reciprocal (for example, cotton count) and direct (for example, denier) units of yarn numbers are given.

Factor	Usual Formula	All-Fiber Formula
When Yarn Number (in a reciprocal system of measuring linear density, such as for cotton) = N:		
Conventional Yarn-Diameter Factor, k_d	$d \times \sqrt{N}$	$d \times \sqrt{D} \times \sqrt{N}$
Twist Multiplier, M	$T/\sqrt{N}$	$T/\sqrt{D}\ \sqrt{N}$
Cover Factor, K	$n/\sqrt{N}$	$n/\sqrt{D}\ \sqrt{N}$
Cloth Cover Factor, Kc	$K_w+K_f-\frac{K_w K_f}{K^*}$	$K^a_w+K^a_f-\frac{K^a_w K^a_f}{K^{a*}}$
Count Balance, Rr	$\sqrt{N_w}/\sqrt{N_f}$	$\sqrt{D_w}\ \sqrt{N_w}/\sqrt{D_f}\ \sqrt{N_f}$
When Yarn Number (in a direct system of measuring linear density, such as denier) = H:		
Conventional Yarn-Diameter Factor, k_d	$d/\sqrt{H}$	$d\sqrt{D}/\sqrt{H}$
Twist Multiplier, M	$T \times \sqrt{H}$	$\frac{T \times \sqrt{H}}{\sqrt{D}}$
Cover Factor, K	$n \times \sqrt{H}$	$\frac{n \times \sqrt{H}}{\sqrt{D}}$
Cloth Cover Factor, Kc	$K_w+K_f-\frac{K_w K_f}{K^*}$	$K^a_w+K^a_f-\frac{K^a_w K^a_f}{K^{a*}}$
Count Balance, Rr	$\sqrt{H_f}\ /\ \sqrt{H_w}$	$\sqrt{D_w}\ \sqrt{H_f}\ /\ \sqrt{D_f}\ \sqrt{H_w}$

computed as follows: From Table 2, (TW, Oct., '52, p. 115) (all-fiber: cotton count) we see that K^{*a} is 22.8. As computed in Problem 2 just above, with (wool: worsted count), K^* is 21.5. So we see that

$$\frac{\text{(wool: worsted count) } K^*}{\text{(all-fiber: cotton count) } K^{*a}} = \frac{21.5}{22.8} = 0.943$$

Hence, it follows that

(wool: worsted count) $K = 0.943 \times K^a$ (all-fiber: cotton count)

Final Conversion-Factor Example

As a final example, let us figure what the conversion factor is for converting (all-fiber: cotton count) K^a into (viscose: denier) K.

From Table 2 again, we see that (all-fiber: cotton count) K^{*a} is 22.8 and from the above Problem 4, we see that (viscose: denier) K^* is 2052.

so we figure

$$\frac{\text{(viscose: denier) } K^*}{\text{(all-fiber: cotton count) } K^{*a}} = \frac{2052}{22.8} = 90.0$$

Hence,

(viscose: denier) $K = 90.0 \times K^a$ (all-fiber: cotton count).

The above material concludes the background needed for an understanding of how the all-fiber system can be used to design fabrics from one fiber and one yarn-numbering system into another.

A succeeding article will take up specifically how to design a woven fabric to match another when you have a change in fiber only.

Symbols Used in Fabric Designing

d	yarn diameter in inches
H	yarn number (direct system)
N	yarn number (reciprocal system)
D	fiber density in grams per cubic centimeter
T	turns per inch
n	number of yarns per inch
k	yarn-diameter factor
K	unspecified cover factor (To specify a cover factor, the fiber and yarn-numbering system must be indicated)
K^a	compact cover factor
subscript w	warp
subscript f	filling
superscript a	all-fiber system

Further Definitions

all-fiber cover factor—a figure that, when used in the accompanying formulas, gives assurance of the same fabric cover, regardless of fiber

(all fiber: cotton count)—To make numerical values clear, the kind of fiber and the yarn-numbering system must be specified by putting both in parentheses, such as (cotton: cotton count). (All-fiber: cotton count) indicates a hypothetical fiber with a density of 1 expressed thus for conversion purposes in the cotton system.

BASIC FORMULAS

Bobbins produced per hr. per frame =

$$\frac{\text{front-roll speed} \times \text{roll dia.} \times 3.1416 \times \text{spindles per frame} \times \text{min. per hr.} \times \text{efficiency}}{\text{in. per yd.} \times \text{yd. per hk.} \times \text{lb. per bobbin} \times \text{yarn number}}$$

Frames per doffer =

$$\frac{\text{standard bobbins per hr. doffed}}{\text{bobbins per hr. per frame}}$$

Hanks per hr. =

$$\frac{\text{front-roll speed} \times \text{roll dia.} \times 3.1416 \times \text{min. per hr.} \times \text{efficiency}}{\text{in. per yd.} \times \text{yd. per hk.}}$$

Cost per frame hank per doffer =

$$\frac{\text{pay rate} \times \text{bobbins produced per hr. per frame}}{\text{hanks per hr.} \times \text{standard bobbins per hr. doffed}}$$

Use of Constants Speeds DOFFER-COST Calculations

▶ Doffer cost per frame hank = constant ÷ yarn number. This simple formula can be used by most cotton mills to get doffer cost with a change in yarn number. Here is how to figure out the right constant for your mill.

By N. H. POMFRET, Provincial Institute of Textiles

YOU CAN FIGURE DOFFER COSTS from the series of full calculations every time you change your yarn number and front-roll speed if you want to. But why go to this trouble? The formulas can be simplified with constants that allow for all the unchanging factors. The result is one constant that will give you the doffing cost per frame hank by dividing the constant by the yarn number.

But there are a few things you have to remember about piece-rate systems. You have to make sure the doffers have enough frames to earn the base pay. When yarn numbers and speeds change, the number of frames per doffer might have to be changed. You can make a chart showing the percentage of full load for given numbers of machines at each yarn number and front-roll speed to post in the spinning room. The spinners should be trained to leave the frames in good condition for doffing, and the doffers should be trained to start the frames after doffing with minimum ends down.

To Set Up a Cost System

1. Determine the number of bobbins a doffer should doff when working at the normal pace for a full 60 min. The number will depend on the distance empty bobbins and full bobbins have to be carried and on the size of bobbin trucks used.

2. Get the actual weight of yarn per bobbin for each yarn number and for each bobbin size. A good way to get this weight is to take 10 bobbins from doffs chosen at random, and use the average of these bobbins.

3. Get the number of bobbins produced per hour per frame with the production formula.

Example:

Yarn weight = 0.16 lb.
Yarn number = 32s
Frame size = 300 spindles
Front-roll speed = 113 rpm.
Efficiency = 92%

$$\frac{113 \times 1 \times 3.1416 \times 300 \times 60 \times 0.92}{36 \times 840 \times 0.16 \times 32 \times 100} = 38 \text{ bobbins per hr. per frame.}$$

4. Get the number of frames per doffer.

Example:

Bobbins per hr. doffed = 800
Bobbins produced per hr. per frame = 38

$$\frac{800}{38} = 21 \text{ frames per doffer}$$

5. Calculate hanks per hr.

Example:

$$\frac{113 \times 1 \times 3.1416 \times 60 \times 0.92}{36 \times 840 \times 10} = 0.6477 \text{ hk. per hr.}$$

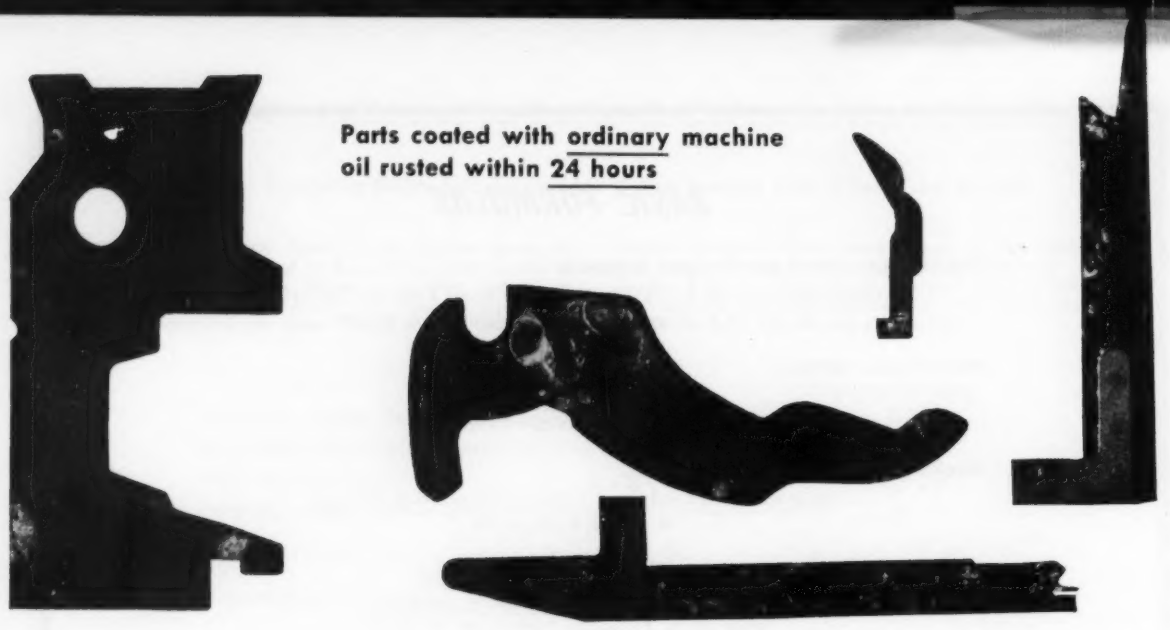
6. Calculate the cost per frame hank per doffer.

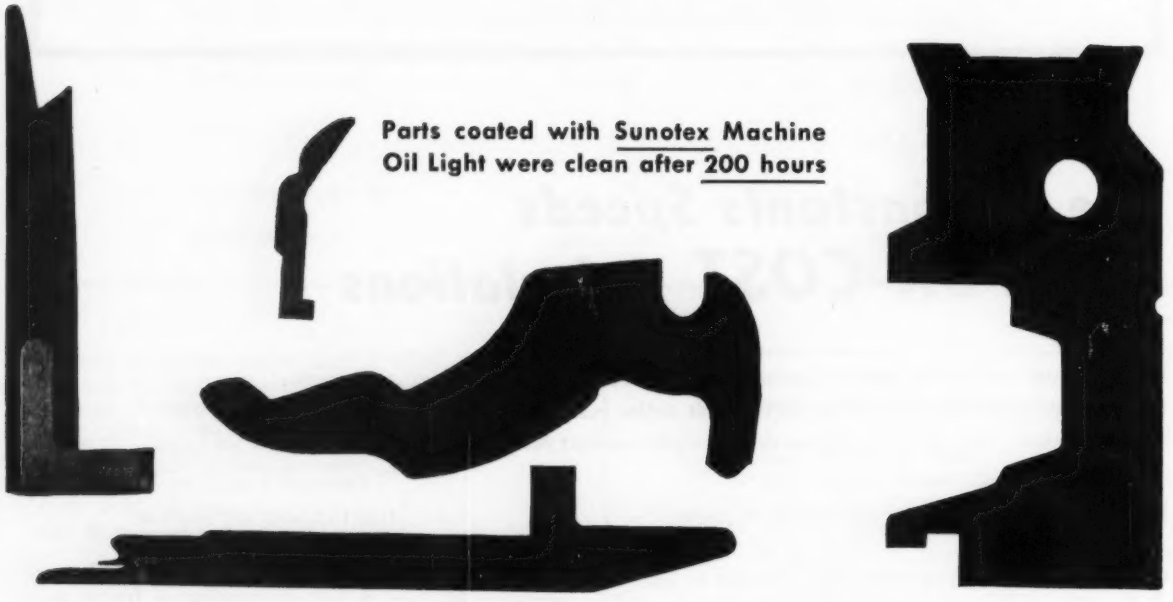
Example:

Use $1.00 per 800 bobbins

$$\frac{1.00 \times 38}{0.6477 \times 800} = \$0.733 \text{ per frame hank per doffer.}$$

(*Continued on page 228*)





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Cutters and Mill Men Discuss TRICOT QUALITY

► Tricot presents problems to a garment cutter that he doesn't have with woven fabrics. Here is a report on a discussion of the factors that determine tricot quality. The quality factors reported are yield, dressed width, stretch, hand, resiliency, color, and strength.

The quality of tricot desirable to the cutter is not always apparent to the mill man, and the requirements of good knitting are not always apparent to the cutter.

In an effort to arrive at mutual benefits, cutters and mill men got together at the recent meeting of the Underwear Manufacturing Executives Assn. The meeting included visits to the Julius Kayser & Co. plants in the Greenville, S. C., area and discussions on problems met in garment manufacture and tricot quality control.

Yield

a. *What is yield?*

Yield is square yards per pound.

One mill uses gray yield to set its cost. Gray yield is finished square yards divided by the gray poundage from the knitting machines. Another mill uses finished yield (the finished square yards divided by the finished poundage).

Finished yield is the only yield to use for delivery to a cutter, since the cutter is interested only in the finished fabric.

b. *Should there be standard yields for the industry?*

Standards for yield variations, rather than yield standards, are needed. England has standard weights with different prices and yields, and this practice confines the mills.

Since mills find it difficult to hit yield on the nose, variations in yield are found. Common variations are 5 to 10%. The suggested standard for yield variation is ±2%.

c. *What effect does excessive yield have on the fabric?*

Too much yield—

1. Increases sleaziness
2. Reduces resiliency
3. Increases shrinkage
4. Lowers wale and course count
5. Lowers strength as a result of lower wale and course count
6. Increases sewing difficulties

The influence of yield on these factors indicates that commission houses that specify too much yield might be hurting their own operations.

Dressed Width

a. *What is the current dressed width of tricot fabric?*

The dressed width is 92 in. (88 in. in Canada). The change from 96 in. to 92 in. gives a better fabric if the difference is not taken out in the length.

b. *Is there a balanced stitch?*

The let-off, take-up, and amount of yarn in the stitch determine the stitch balance. The runners can be balanced no matter what quality of fabric is knitted. The mills should be the leader in establishing the best proportions for a balanced stitch, since a commission house often gets unbalanced fabric because it doesn't know any better.

The balanced stitch should not be distorted in finishing because it is desirable that each fiber share its portion of the strain. The fabric should present a clean face, and the ball-burst test should give substantially the same results across the fabric.

Usually, the best proportions for a stitch are found by experiment and depend on fabric quality desired.

c. *What tolerance over the required dressed width does a cutter like to have?*

The cutter needs a 93- to 93½-in. fabric to get a 92-in. width on his marker. He has trouble with curling edges and shrinkage from age and handling.

Stretch

What should be the stretch for tricot fabrics?

The stretch for underwear fabrics should be 50% in the width and 15 to 20% in the length. The denier of the yarn does not change the stretch requirements.

Hand

What do we mean by hand?

Hand is hard to define, but it is an important element in tricot quality. A 55-den. acetate fabric should have a temporarily firm hand to give the cutter an even layout. The firm fabric becomes soft from handling during cutting. Hand is determined by the finishing process, and knitting has little to do with it.

Resiliency

How much resiliency should tricot fabric have?

Get as much resiliency as you can. The resiliency of a fabric depends in a large measure on yield and dressed width.

Color

What defects in dyeing cause the cutter the most trouble?

Variations in color in a piece or roll rather than off-shade dye lots cause the cutter trouble. The migration of dye specks is a source of difficulty, and one mill has trouble with yellow spots from an unknown cause. Lint clinging to the fabric also causes trouble.

Strength

What four factors determine the strength of tricot fabric?

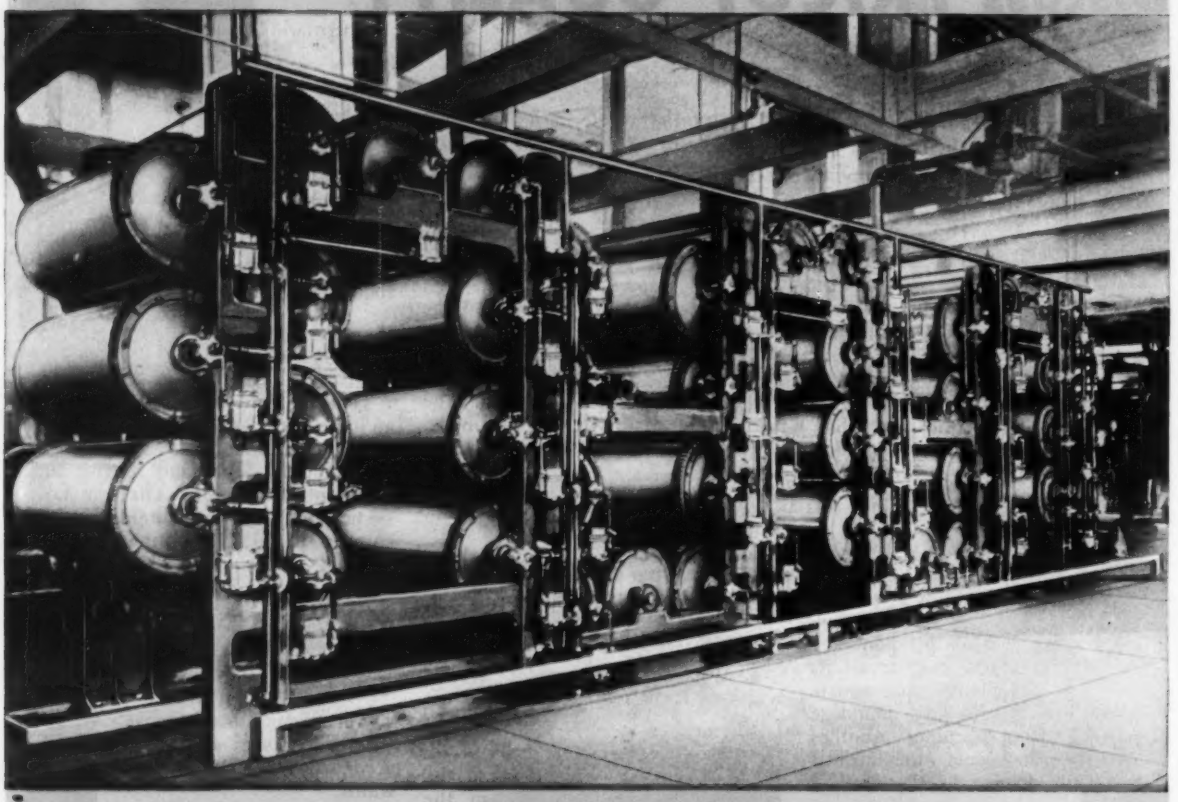
1. Type of yarn
2. Denier of yarn
3. Stitch balance
4. Wale and course count

Other Defects

What other defects cause trouble?

Snags and broken ends mostly. There is a need for standards on imperfections. When a certain number of defects are given for a piece of fabric, the cutter does not know exactly what they are or where they are.

Revolution in Cylinder Dryers



New manufacturing techniques . . . new fabricating economies . . . new precision machinery . . . increased capacities

There's a "revolution" in drying equipment. It started with the new Butterworth plant at Bethayres — the most modern unit of its kind for the manufacture of cylinder dryers. New precision machinery including automatic welding equipment for both coded and uncoded cylinders is in use. Increased capacities mean deliveries on schedule.

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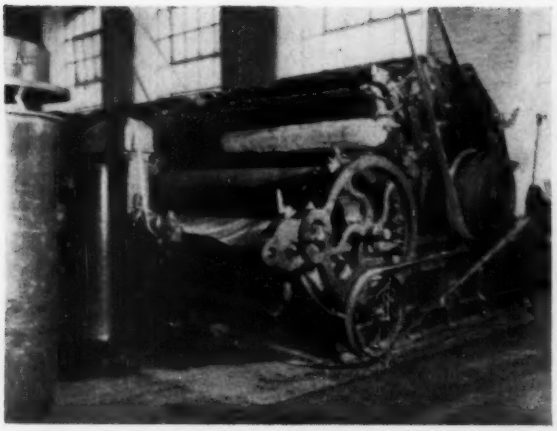
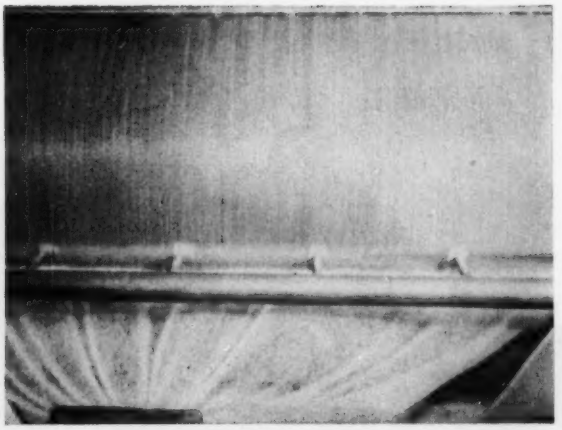


WITH 194 CARDS ON METALLIC WIRE, Columbus Mfg. Co. is reaping surprising advantages because it's had the courage of its conviction that metallic wire could work on any cotton goods.



TALK ABOUT CLEANLINESS: notice how clean the wire on this card is—and we caught it without previous preparation in the middle of the stripping cycle.

Let's Take Another Look at METALLIC CARD CLOTHING

HIGHLIGHTS: Columbus Mfg. Co. is now making cotton gabardines, drills, and sheetings with metallic wire on all of its 194 cards—Some of the cards have run over 20 yr. without grinding—And the cards have to be stripped only once a week—Here are some of the procedures that Columbus has found best.

By **JAMES H. KENNEDY,** Southern Editor, TEXTILE WORLD

IF YOU'VE TRIED metallic card clothing, or if you're thinking about it, you'll be interested in the little tricks that Columbus Mfg. Co., Columbus, Ga., has developed in over 20 yr. of experience with metallic wire. Use of these methods has enabled this mill to go right into fancy cotton goods from its previous line of industrial sheetings—and quality remains high.

The mill is now making gabardines, drills, sheetings, and print cloths from 19.5s to 30s warp yarn and 15s to 43s filling yarn.

Grind Base Wire for Best Results

When you change over a conventional cotton card to metallic clothing, you've got to build up the circumference of the cylinder because the wire is not so high as fillet clothing. This base wire should be carefully ground to make sure that the winding surface is true. E. G. Hubbard, Jr., overseer of carding, says that this is one of the secrets of Columbus' success with metallic clothing.

After the top layer of wire has been wound, the surface should be ground lightly. This is the only grinding that the clothing ever gets in normal service, and 15 to 20 min. is usually sufficient to give a true surface.

Setting Requires a New Feel

Metallic wire has no "give;" so you would expect that settings would be made a little differently. It doesn't take long to develop the new touch, though.

Here are the settings that Columbus uses:

	Inches
Flats	0.010
Doffer to cylinder	0.005
Lickerin to cylinder	0.005
Back screen to cylinder	0.022
Bottom screen to cylinder	0.034
Top front screen	0.068
Lickerin screen to lickerin	0.068
Mote knives to lickerin	0.010
Back plate, top and bottom	0.022
Front bottom plate	0.015
Feed plate to lickerin	0.015
Front top plate	0.034

Roll Stripping Is Best

H. B. Robinson, superintendent, says that the stripping cycle is once a week, on a 144-hr. basis. Stripping must be done with a roll for best results.

Three Points You Do Have To Watch

1. *Selvage chokes.* Chokes sometimes occur between the doffer or cylinder and the housing. All you have to do is take a hook and reach in to clean out these spots more often.

2. *Doubled ends.* Because metallic wire is not springy, you've got to be more careful with double-backed lap

(*Continued on page 194*)

▶ **Metallic card clothing is not a new subject, but application of metallic wire to anything but coarse goods is news. For many years Columbus Mfg. Co. has had all of its cards clothed with metallic wire. The operating data given here comes from an extensive background of experience.**

Steel-Service Team

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Your nearby Ryerson plant is staffed with specialists on carbon, alloy and stainless steels who are always ready to work with you. Often they can suggest practical alternates when the steel you need is not available. And back of the Ryerson plant nearest you stand the resources of fourteen other Ryerson plants, making up the nation's largest steel-service organization. So when a kind or size is not on hand locally, we may be able to ship it from another plant.

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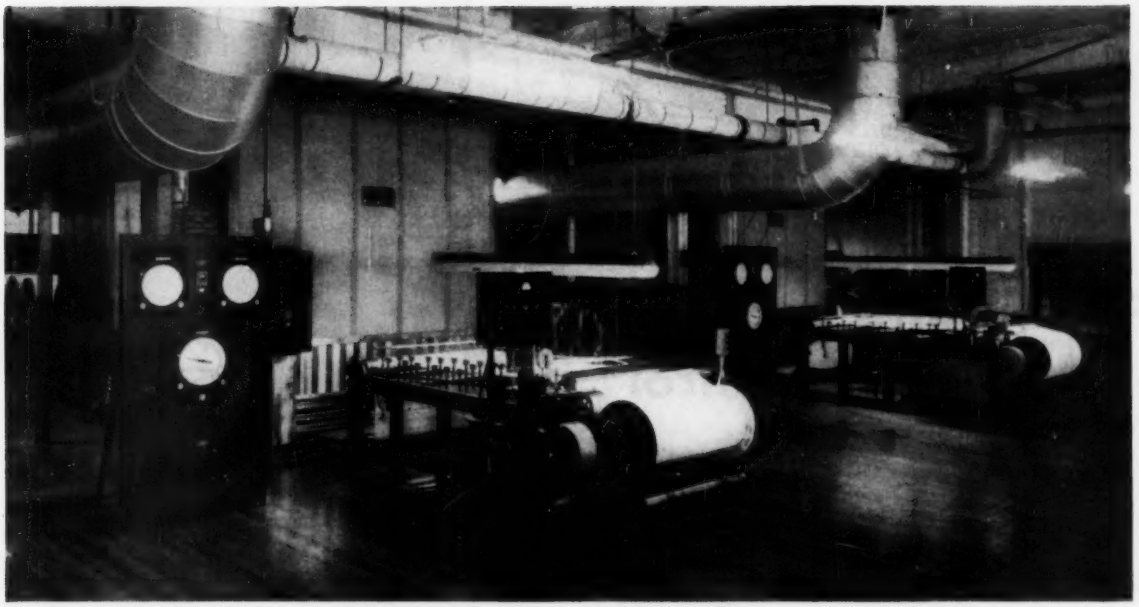
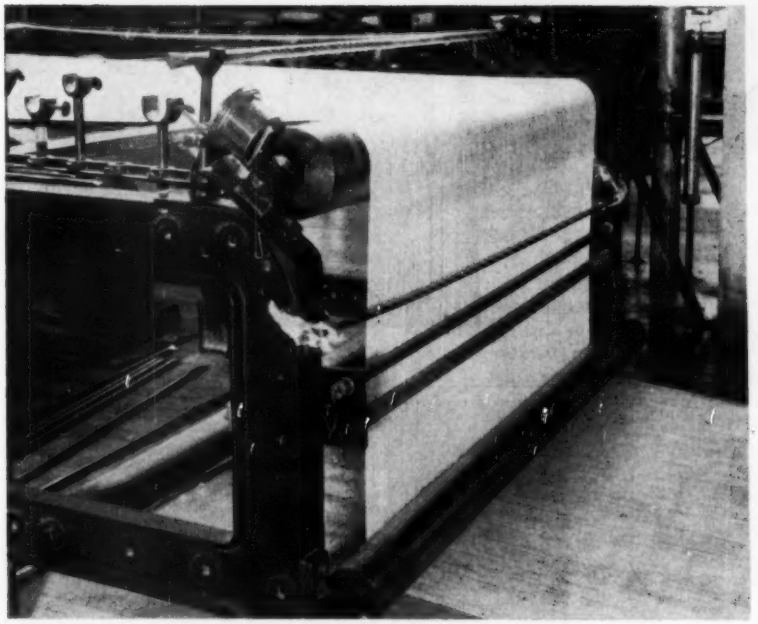


THESE HOT-AIR SLASHERS have plenty of space between them. They have different systems for moisture control, but the instrument panels are identical. Preheaters in the size boxes prevent cyclic fluctuations in the systems.

Cluett-Peabody Installs New SLASHERS and CONTROLS



A SPLIT-ROD was substituted for the detector roll usually found on moisture-control systems to detect moisture content. The instruments had to be recalibrated to the split-rod detection. The split rod is said to be better for detecting wet selvages.

HIGHLIGHTS: Three new hot-air slashers replaced six old slashers at Cluett-Peabody. One of the slashers has a variable-drive moisture-regain control; the others have variable-temperature moisture-regain controls. Preheaters in the size box prevent cyclic fluctuations in the systems.

By FRANK SUSS
Supervisor of Slashing, Cluett-Peabody & Co.

PRIOR TO MODERNIZATION of the slasher room at Cluett-Peabody & Co., North Grosvenor-Dale, Conn., there were six slashers handling the demand for 1,000 looms. Today, only one of the original slashers remains, and it is assigned to intermittent special jobs and small-lot runs.

The looms are now fed by three Uxbridge hot-air slashers with automatic controls. The slashers run at 65 to 75 yd. per min., which are not astounding speeds, but the consistency

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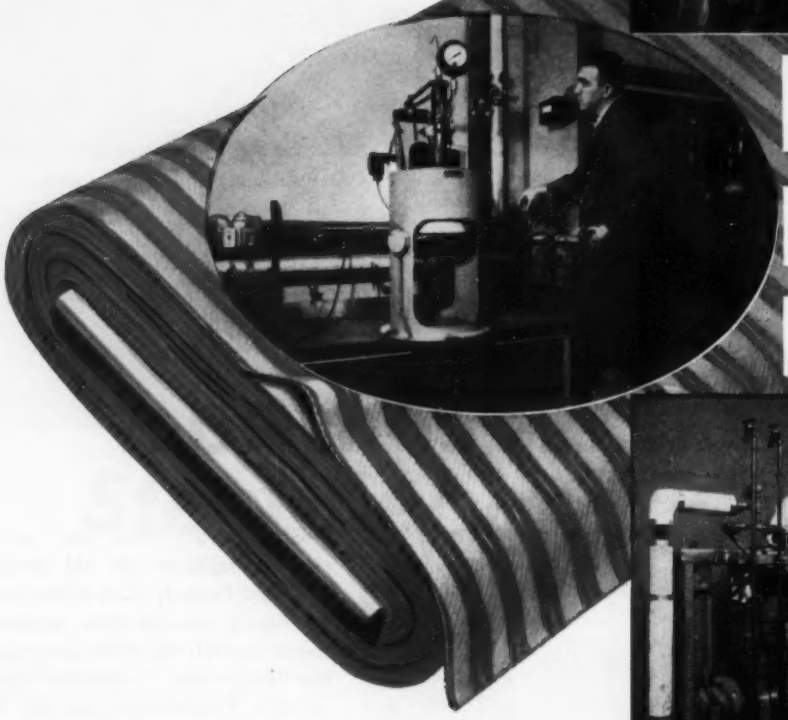
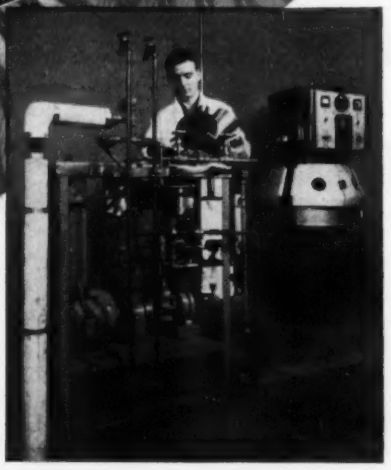


Above, Pittsburgh quality control begins in modern coal chemical producing equipment where intermediates are made.

Left, laboratory autoclaves help maintain quality standards in Pittsburgh Dyestuffs Plant.

In Applications Laboratory, *below*, technician makes quality check on sample dyeing.



As A BASIC and integrated producer of coal chemicals, including important dye intermediates, we're able to precisely control and maintain the uniform high purity and quality of Pittsburgh Dyestuffs *from coal to finished* colors. In our coal chemical plant . . . in our two dyestuffs laboratories . . . and in our modern dyestuffs plant, experienced technicians maintain the rigid standards of Pittsburgh quality. The results? Dyes that assure you optimum performance in application as well as exceptional fastness to light, laundering and wear. If high uniform *quality* is your first consideration, it will pay you to buy basic . . . *buy Pittsburgh.*

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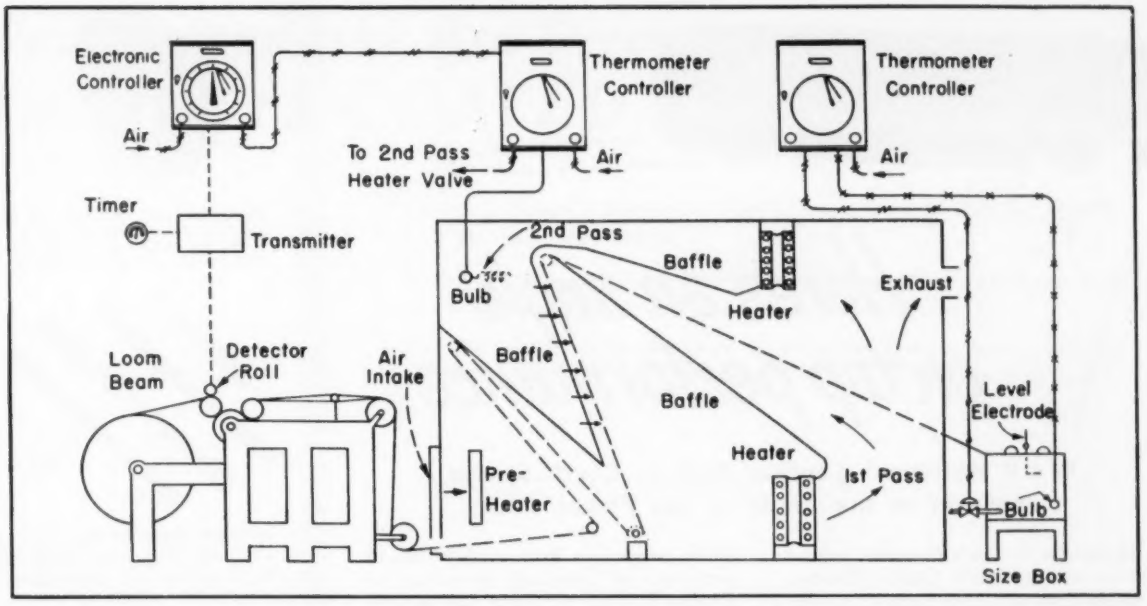


DETAILS OF THE SLASHER are shown in this drawing. The detector roll was replaced by a split rod, as shown in the picture at the bottom of page 137, and preheaters were installed in the size box.

of this speed and the sustained quality of production is important.

Another feature of the installation is the additional floor space and greater clearance between the slashers.

Two Kinds of Slasher Controls

One of the slashers at Cluett-Peabody has a variable-speed control that regulates the drying rate by changing the speed of the warp; the others have the cascade or constant-speed control, which changes the temperature to control the drying rate.

The choice of one over the other is usually based on mill preference. Both systems hold regain within close tolerances. The cascade system, however, has a more direct control by changing the temperature. It avoids the wear that frequently results from constantly fluctuating machine speeds.

Control thermometers regulate slasher-box temperature on both systems, but the thermometer on the variable-speed control only maintains a constant temperature. Another control thermometer on each slasher maintains a constant temperature in the size box.

Cluett-Peabody has one modification of these moisture-control systems that is a wide departure from the standard. On practically all slasher applications, for reasons that are well established, the detector roll is used for picking up a resistance change at the back press roll. This resistance is calibrated with the moisture content.

Cluett-Peabody tried a new approach to moisture detection. With the assistance of the equipment-manufacturer's field-service personnel, a split rod was mounted on the rear frame to substitute for the detector roll. This device is not considered essential, but perhaps just knowing that occasional wet selvages are detected makes the installation worth while.

The Variable-Speed Control

On the slasher with the warp-speed control, a Moist-O-Graph measures the moisture regain in the warp yarn. This type of speed-control system is usually identified as an electric operation, but a pneumatic control in the instrument translates deviations from the instrument set point into changes in an air-pressure line.

The pneumatic control connects with a Conoflow pneumatic current controller. This current controller is a combination of a double-acting piston positioner, built-in relay, pressure regulator, gauge, and rheostat. Through a rack-and-pinion linkage, the piston positioner operates the rheostat, which makes the correction in the slasher-drive speed.

The Cascade Control

The cascade or variable-temperature control uses the same moisture-measuring device as the variable-speed control. The air-pressure line connects to an adjustable Indexet mechanism in the thermometer that measures and controls the drying temperature in the final pass of the slasher.

The Indexet mechanism, a bellows-operated device, shifts the thermometer set point up or down scale with the change in air pressure. These air-pressure changes indicate load changes in the slasher, as registered by the moisture-measuring instrument. If the warp yarn shows a tendency toward dryness, the air pressure becomes less and the thermometer scale is shifted down scale with a decrease in heat and return to optimum drying conditions.

Preheaters Put in Size Box

Size is kept in the storage kettles at 160° F. to prevent its viscosity from lowering. It is not difficult to see how the introduction of cold size into the size box could upset temperature regulation. The relatively small size box cannot overcome large load changes occurring every 45 sec. If this cycle persists, the result is regain fluctuations with the yarn alternating between overdried brittleness and underdried softness.

At Cluett-Peabody, these undesirable fluctuations were first noticed on the control panel. First, the signal

(*Continued on page 190*)

Here's an angle on top performance

G & K Hairitan® Leather Endless Check Straps conform to the angle of the Picker Stick

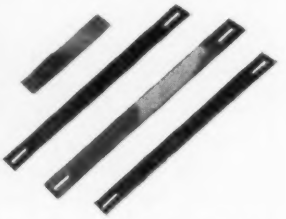
The camera — faster than the human eye — proves that G&K Hairitan Leather Endless Check Straps *conform* to the angle of the Picker Stick. The strap moves between the tension fingers *in an arc* and travels with the stick to the end of the stroke. It cushions the stick with a balanced cradling action that prevents twisting.

Made of a single piece of choice Hairitan leather, folded double and cemented with one lap, this endless check strap has been engineered to perform its checking function on Draper Looms, *perfectly for months on end.*

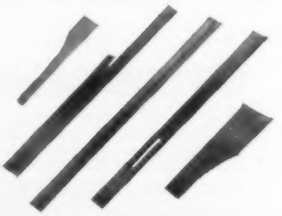
Your Distributor can supply you with these straps in all sizes, either hair-on or hair-off. Also — 25 other groups of items in the famous G&K Orange Line of Textile Leathers to help you boost production on your looms.

Have you seen the new A.L.B.A. report on check straps? This impartial survey proves by stroboscopic photos that the single leather endless strap is best. Write us for your FREE copy.

Pickmaster® Pickers do not bounce the shuttle, or cause the shuttle spur to heat up. Assure smooth shuttle flight and accurate boxing.



Straight Check Straps with low permanent stretch and high resiliency assure smooth shuttle throw. Built to flex uniformly and outlive ordinary straight check straps.



Boxmaster Binder and Box Plate Leathers of special HAIRITAN® Leather with smooth, catch-free edges and deep, velvety surface. Need no waxes or fillers — do not bleed and discolor the filling yarn.

G&K Orange® Line Loom Leathers

1. STOP KINKY FILLING (No shuttle bounce)
2. REDUCE BANG-OFF (Perfect boxing)
3. CUT SHUTTLE COST (No hot spurs)
4. INCREASE PROFITS

MEMO: If your problem is power transmission, see your G&K Belting Distributor for:

HEART OAK **top grade oak tannage**
RESEARCH® **premium quality special tannage**
SPARTAN® **combination tannage: resists moisture, fumes**

WRITE FOR FREE BELTING MANUAL 101

T-1

GRATON AND KNIGHT®

GRATON & KNIGHT COMPANY
Established 1851
Worcester 4, Mass.

DIXIE LEATHER CORPORATION

DIXIE LEATHER CORPORATION
Graton & Knight Company Affiliate
Albany, Georgia

Test Procedures Are Diverse For VINYL-COATED FABRICS

- **Coating compounds themselves should be subjected to tests for specific gravity, hardness, and volatility**
- **Coated fabrics should be evaluated for flammability, crocking, bias strength, brittle temperature, abrasion, flexing, and folding**
- **Free film of the compound should be tested for tension, tear, migration, heat stability, blocking, soapy-water extraction, and gasoline and oil immersion**

By **THOMAS J. KERR,** Coated-Fabrics Consultant

TEST PROCEDURES may be divided into two categories: first, tests that determine the characteristics of the coating; and second, tests that evaluate the coated fabric. The first tests may often best be made on a free film and are primarily useful in determining the quality of the coating compound, particularly in respect to comparing quality vs. costs. The techniques of preparing such films were outlined in TEXTILE WORLD, April, 1952.

Some tests are duplicated on the coated compound and on the finished coated fabric. Qualities such as breaking strength and elongation, for example, are characteristics of the fabric in the finished product; but they are also useful tests for determining the quality of the compound.

Specifications for the tests on the coating should insure that the best possible coating for the end use is developed at a minimum cost. The tests made on the coated fabric should determine that the finished product is suitable for its intended use and that it will perform satisfactorily in service.

Here's What Has Been Done

The American Society for Testing Materials, the United States Bureau of Standards, the Society of the Plastics Industry, and other organizations are working to develop, standardize, and establish methods for evaluation of vinyl-coated fabrics.

Approved methods for the evaluation of rubber, pyroxylin, and other coated fabrics are well established. In some cases these methods are directly applicable to vinyl coatings.

More progress has been made in establishing methods for testing free vinyl film than for coated fabrics. Free film of this type, an entirely new material, required rapid development of specifications and tests. Some of the methods for testing self-supported films may be applied directly to vinyl coatings, and others are useful in making comparative evaluations of the coating compounds.

In a previous article, [TW, April, '52] the necessity for specifications and tests was discussed in detail. In this article detailed test methods are given. However, where established methods are available from such sources as the ASTM, only an outline of the test is given, together with the applicable reference.

With this description of vinyl-coated-fabric test procedures, this series by Mr. Kerr on coated-fabric techniques ends. The series of articles started in the February, 1952, issue.

For further information on the subject of fabric coating, or for reprints of this series, write directly to Mr. Kerr, R.F.D. 1, Gowanda, N. Y.

Evaluation of Coating Compound

Specific Gravity

Determined on the dry fused compound.

Sample

The sample for testing should be die-cut from a molded sheet or a molded cube, solid, free from bubbles, rough edges, and dirt or other contamination. Its minimum volume should be 0.25 cu. in.

Procedure

The sample should be weighed in air and again in water. The specific gravity is expressed as the ratio of the weight of a specific volume of the material to that of an equal volume of water at the same temperature.

The specimen is suspended from the hook on the balance arm of an analytical balance by means of a silk thread. The length of the thread should be such that the sample will hang about 1½ in. above the pan. The weight of the suspended sample is determined and designated as A.

The sample is then weighed in water by placing a beaker, about 2/3 full of freshly boiled distilled water at 25° C., on a support or straddle over the balance pan. The support must be high enough above the pan for the balance to swing freely without the pan touching the support. If air bubbles cling to the surface of the sample, they must be removed by means of a fine wire before weighing. This weight is designated as B. The specific gravity is then calculated from the formula:

$$\text{Sp. gr.} = \frac{A}{A - B}$$

Hardness

Determined on the dry fused compound.

Sample

The sample should be of the free film of the compound.

Procedure

The hardness is determined by using the Durometer Type A at 30° C.

(*Continued on page 274*)

. . . . . *A neat trick—for finishers of*

shreinered, embossed or frictioned fabrics

RESIN DJ dives into fabrics, penetrating so deeply that a desirable hand is retained without the excessive use of softeners. Resin DJ is especially useful in permanent glaze, fabric stabilization and crush resistant work. It is a UF condensate soluble at low temperatures.

FIRMEL being a partially polymerized resin of large molecular structure skates on the surface of fabrics, producing a high lustre glaze and crisp hand. It becomes permanent when used with a catalyst and cured. Firmel dissolves readily and stores indefinitely.

COMBINING the penetrating qualities of Resin DJ with the surface finish of Firmel makes an efficient and very economical formula that lessens fabric deterioration and eliminates resin build-up on rolls. You will find these resins very easy to handle. They are delivered fresh, keep well and dissolve readily at low temperatures. For test samples, write BRYANT CHEMICAL CORPORATION, N. QUINCY 71, MASS. or Box 2301, SPARTANBURG, S. C.

Brytex
PRODUCTS

SMALL BUNDLES OF COTTON, about 10 lb. in weight, should be taken from each bale on each feeding. With multiple-blending feeders, this method gives excellent blending of all the bales in the mix.

Use This Report To Check Your OPENING AND PICKING

▶Here's a summary of the report made by a textile engineer called in to study the opening and picking of a New England cotton mill. You may be able to use it to check up on your opening and picker rooms.

By E. H. HELLIWELL, Contributing Editor, TEXTILE WORLD

Recommended Settings and Speeds

BLENDING FEEDERS: Set pin apron to combing roll close enough to prevent unopened lumps from passing through. Use indicators on each side of machine to assure the same setting on each end of roll. These settings may range from $\frac{1}{4}$ to 1 in. and may be governed by the density of bales being used. Closer settings mean less production. Speed of pin apron should be sufficient to meet the required production.

VERTICAL OPENERS: Grid-bar openings: $\frac{1}{2}$ in. Bars to beater: $\frac{3}{8}$ in. Increase angle of bars to increase the amount of waste removed. Speed of beater: 650 rpm.

LATTICE OPENER: Grid bars to beater: $\frac{3}{8}$ in. Greater angle and opening of grid bars increase waste removed. Beater speed: 700 rpm.

PICKERS: Set beater to feed roll: blade beater, $\frac{7}{16}$ in.; Kirschner beater, $\frac{1}{4}$ in. Beater to grid bars: top, $\frac{3}{8}$ in.; bottom, $\frac{1}{4}$ in. Set angle of bars to remove waste without loss of good stock. Speed of beaters: three-blade, 1,150 rpm.; two-blade, 1,350 rpm., Kirschner, 950 rpm.

A TEXTILE ENGINEER, at the request of the management of a large cotton mill, recently made a survey of the opening and picker rooms in the plant. His report described the conditions found and the recommendations needed for improving the maintenance, operation, and delivered product. This report helped this mill; this summary of it may serve as a guide to solving some of your opening and picking problems.

The opening-room machinery was found in good condition. Machine maintenance, lubrication, cleaning, and operation were all reported as excellent. Variations in speeds and settings were found in a few cases. It was recommended that the speeds, settings, and methods of operation suggested by the engineer and shown in the accompanying panel be established as mill standards.

The engineer found that there was sufficient room in the opening room for two 24-bale mixes. It was suggested that one 24-bale mix be used while another 24-bale mix was opened on the floor for conditioning. As many different marks were to be used in each mix as the cot-

(*Continued on page* 196)

Cook P&N

continuous bleach range

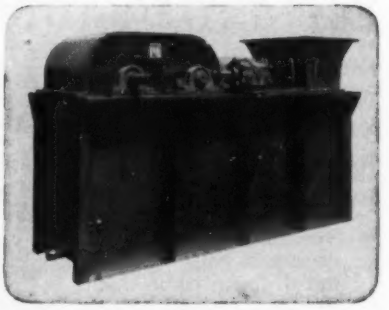
SELF-SUPPORTING J-box

Continuous Bleaching now plays a major role in the preparation of cotton piece goods. The Cook J Box has contributed in no small measure to this development.

Introduced only a short time ago, the Cook *self-supporting all stainless steel* J Box met with instant approval and is regarded by those who have it as outstanding in its field. Not only does it save floor space and provide greater accessibility but eliminates the usual structural steel supports which in the bleach house atmosphere of acid fumes do not stand up well.

Complete ranges are furnished with either the Becco or DuPont type J-boxes of any width and number of sections to fit your needs in either rope or open type processing.

All Cook machinery is fabricated in our own shops allowing design flexibility *without* premium cost. Stainless steel fabrication eliminates broken castings and factory-made repair parts. All machines are guaranteed to perform as specified. Your request for information will receive prompt attention.



COOK Saturator 3106-2 gives a uniform and thorough saturation. May be mounted inside J-box radius if available space is limited. Has self-supporting stainless steel tank. Squeeze rolls horizontally arranged, mounted in self-aligning anti-friction bearings and pneumatically pressured leave the correct amount of solution in goods for complete action in J-box. Rolls totally enclosed to prevent splash and accidents.

COOK-P & N MACHINE CO., INC., 365 Dorchester Ave., Boston 27, Mass.

Exploring

The Textile Community

COMMUNITY SEMINARS
Get Ideas Across in Mill Towns

▶ Alabama Mills, Inc., has been doing a job of public education through Freedom Forums held in its mill communities. The program is paying off in civic action on local and national issues.

By MILDRED BARNWELL ANDREWS

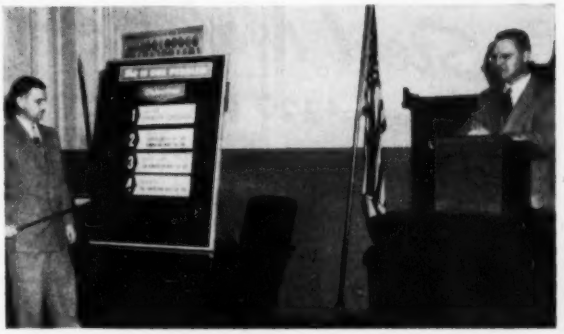
THE RESPONSIBILITY A COMPANY may feel toward its community is exemplified by the Freedom Forums of Alabama Mills, Inc. These programs, which have been in progress for nearly a year, have influenced thinking in many sections of Alabama and have left an imprint on the public that may affect the future of the state.

The forums are patterned after, and their programs drawn from, the parent Freedom Forums held every three months at Harding College, Searcy, Ark., as part of the college's National Education Program. Ten years ago the National Education Program was inaugurated under the leadership of the college president, Dr. George S. Benson, a former missionary who had lived in more than twenty countries studying government trends. Convinced that the American way of life has more to offer to the greatest number of people than any other form of government, Dr. Benson has preached this gospel by developing the nationwide program through newspaper columns, newsletters, radio, movie shorts, lectures—and the Freedom Forums. The message on Americanism is also being spread by those who conduct similar seminars, as Alabama Mills, Inc., is doing in its state.

How the Forums Are Run

The company is well located to do a job in seminar education. The main office and plant are in Alabama's largest industrial center, Birmingham, but the company is also the chief industry in six small towns scattered in several counties.

Paul Redmond, Jr., executive vice president of Alabama Mills, Inc., and Bob Argo and J. C. Park, Jr., of the personnel and public relations departments, conduct the forums. In each case material provided by Harding College is used. It includes a kit with speaker's guide and script, plus a flannel board and about 50 flannel-board symbols to illustrate the address and to guide the seminar discussion. The speaker's kits are provided by the college at a cost of $27.50; the flannel board with cloth costs $82.00 additional. Of course, the flannel board can be used over and over, with a different subject substituted from a new kit for each change of program.



A TEAM from Alabama Mills, Inc., talks and presents ideas graphically in community seminars that discuss public affairs. At the left is P. A. Redmond, Jr., and at the right, J. C. Park, Jr.

Programs Are Popular

Alabama Mills, Inc., held its first forum last spring for several hundred high school seniors in their respective mill communities. Comment was rousingly favorable from the students and from teachers, ministers, and others who attended the sessions.

Next, the forum was presented to civic groups in the mill towns and in Birmingham. The news of this unusual program traveled rapidly, and requests poured in for presentations before civic leaders, civic clubs, women's clubs, vocational schools, and many other groups.

The team is available at any time and with no charge; Alabama Mills, Inc., simply wants to get the story before the people. Currently, the team has many future engagements to speak before important opinion-molding groups.

As an outstanding achievement in employee relations as well as community relations, the group was invited to present the forum and newer plans for economic education for workers before the Eleventh Southeastern Personnel Conference held recently at Duke University. There, personnel directors representing more than 100 companies from many types of industries took note of this company's new approach to building more solid community understanding of national affairs.

They Got Out the Vote

Throughout the summer of 1952 and up to November 4, Alabama Mills sponsored Freedom Forums entitled "The Power of Your Vote." The programs pointed out the

(Continued on page 232)

ALEMITE OIL-MIST

extends bearing life 11 times!

Steel Maker saves

$220 per Week.

Eliminates Lubrication Downtime

High-speed bearings on a key production machine burned out regularly—*week after week*. Tedious hand lubrication, man-hours for repairs, machine downtime, and cost of new bearings piled up. To end this expense, the company turned to Alemite—installed Oil-Mist equipment costing little more than a hundred dollars. *Result*: A savings of $220 in the first week. Today—after 11 weeks of operation, the bearings show *no sign of wear*; only 3 ounces of oil are used per shift where a pound and a half of grease were required before!

Facts prove this *"Friction Fighter"* most efficient, continuous, fully automatic lubrication system

Again, Alemite proves world leadership in lubrication with Oil-Mist, the system that *atomizes* oil into mist—distributes it through tubing to bearings—bathes all bearing surfaces with a cool film of clean oil. Amazingly efficient, the lubricator has no moving parts—and, the human element in lubrication is removed.

Thoroughly tested in countless applications throughout all industry, Oil-Mist—as facts prove—uniformly maintains oil film on plain and anti-friction bearings, gears and chains despite variations in load, temperature or speed. Don't you owe it to *your* business to learn all about Alemite Oil-Mist—*today*?

ALEMITE OIL-MIST Lubricates All Types of Mechanisms

Alemite OIL-MIST Lubrication

A PRODUCT OF STEWART-WARNER

Compare all these OIL-MIST advantages with *ordinary* methods!

- Reduces bearing temperatures as much as 20%.
- Continuous, uniform lubrication of all types of bearings.
- Air pressure seals bearings against dirt.
- Reduces oil consumption—up to 90%.
- Prevents product spoilage.
- Eliminates guesswork—each bearing picks up as much Oil-Mist as it needs.
- Reduces starting and running torque.

Get the facts NOW!

Alemite, Division of Stewart-Warner, Dept. J-23
1850 Diversey Parkway, Chicago 14, Illinois

☐ Please send me a FREE copy of your new and complete Oil-Mist Catalog.

☐ Please have your Alemite Lubrication Representative arrange a desk-top demonstration of Oil-Mist. This entails no cost or obligation on my part.

My name .....

Title .....

Company .....

Street .....

City ..... State .....

TEXTILE Equipment NEWS

Universal Roving-Spinning Drafting Elements Improved

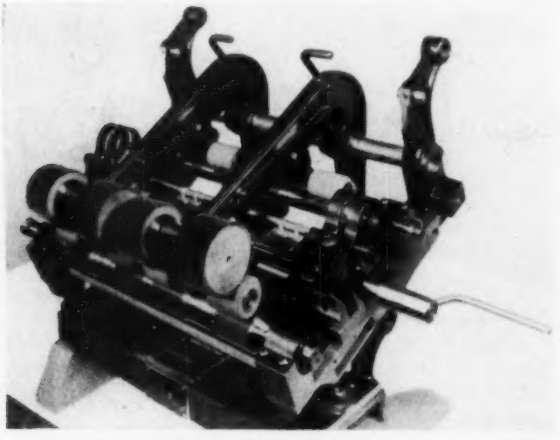
Improved drafting elements, F-5 for roving frames and Z-5 for spinning frames, have been made available by Saco-Lowell Shops, 60 Batterymarch St., Boston 10, Mass. The F-5 roving-frame drafting component handles most worsted and synthetic fibers and blends. It has a maximum roll spread of 9 in. The Z-5 spinning-frame drafting component is designed for fibers up to 5¾ in. long.

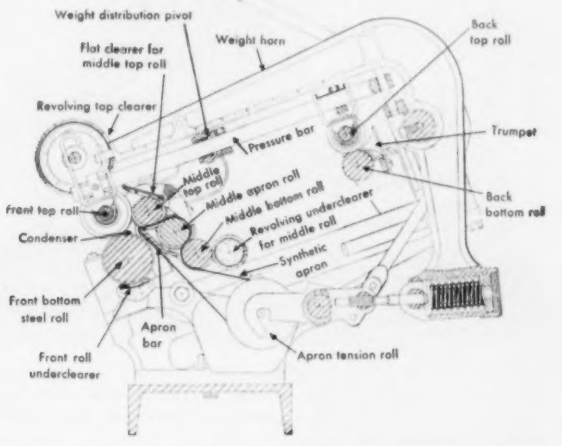
F-5 for Roving

The F-5, like the Shaw system of fiber control, has an apron that passes over an apron bar and bottom roll in conjunction with a single top roll. There are four spindles per roll.

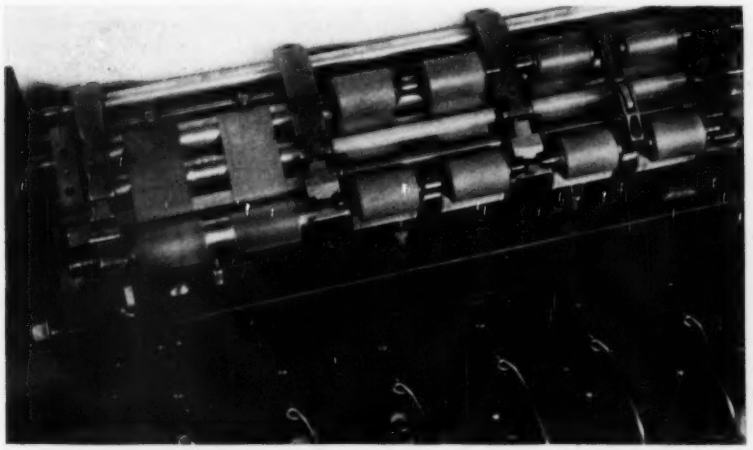
Diameters of the various rolls are as follow: front top roll, 1⅞ in.; middle top roll, 1$\frac{5}{16}$ in.; back top roll, 1$\frac{5}{16}$ in.; front steel roll, 1$\frac{1}{16}$ in.; apron roll, 1$\frac{5}{16}$ in.; middle bottom roll, 1$\frac{5}{16}$ in.; and back bottom roll, 1⅛ in.

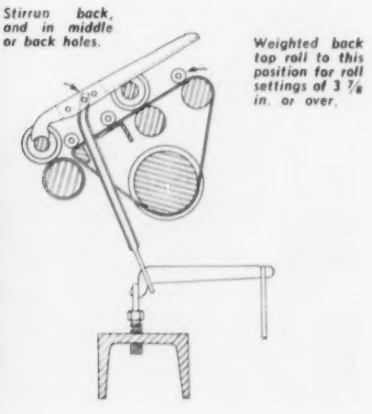
The problem of lapping up on the front bottom roll has been overcome by means of an apron bar of a new contour that permits close setting of the apron to the 1$\frac{1}{16}$ in.





F-5 DRAFTING ELEMENT FOR ROVING has a gear-driven middle roll. The degree of fiber control is governed in part by the amount that the middle top roll depresses the apron.





Z-5 DRAFTING ELEMENT FOR SPINNING can handle a wide range of fibers and staple lengths with a minimum of changes. Three slip rolls and two lengths of saddles are provided.

front steel roll. This larger roll, compared to the 1⅛ in. roll of the FS-4 system, has a large enough circumference to eliminate most lapping tendencies.

Z-5 for Spinning

Staples from 1 to 5¾ in. can be handled with a minimum of changes on this latest modification of the manufacturer's "Z" system of spinning, which uses a single drafting zone only.

The distinguishing feature of the Z-5 is an auxiliary apron bar. This apron bar or shelf is located between the middle roll and the standard apron bar and serves to support the apron for the wider settings required when longer fibers are being drafted.

The slip rolls used in conjunction with the apron bar are of small diameter so that a close setting of the apron bar to the front rolls can be obtained.

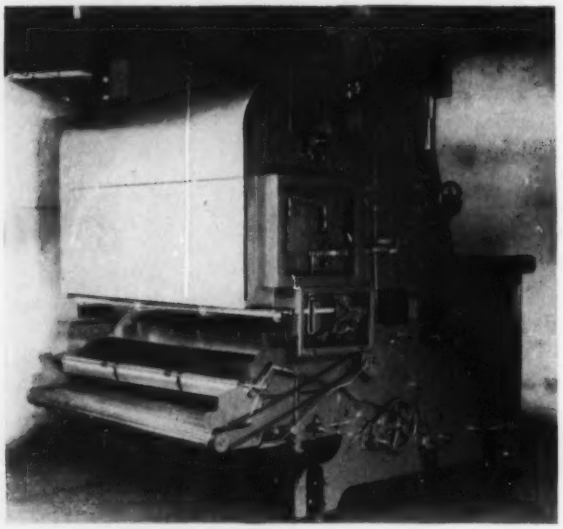
The top rolls, both the self-weighted control rolls and the back weighted roll, may be adjusted to the length of the staple to be processed.

Only one slip roll is used for roll settings up to 3 in. Two slip rolls are used for settings from 3 to 5⅛ in. The shelf is taken out for settings from 4 to 5⅛ in. because in this range the back top roll is placed back over the back bottom roll rather than the middle bottom roll.

For settings of 5¼ to 6 in., three slip rolls are used, and the auxiliary shelf is also inserted.

Two different lengths of saddles are provided. The shorter one is used for roll spreads from 1⅛ to 3¾ in., and the longer one for settings ranging from 3 to 6 in.

Streamlined Bramwell Feeder Has Variable-Speed Apron



VARIABLE-SPEED SPIKE APRON on this new Harwood Bramwell feeder and a solenoid-operated automatic catch pan make for uniform feeding to the scale pan and elimination of last-minute surplus strippings dropping into it.

A Bramwell feeder that gives uniform weighings regardless of the amount of stock in the hopper has been put on the market by George S. Harwood & Son, 50 Lagrange St., Worcester 8, Mass. Known as the Type G, it has electrical controls, a feeler plate that gauges the quantity of stock lying in the hopper, and automatic regulation of the speed of the spike apron to compensate for changes in that quantity in the hopper.

The variable-speed motor for the spike apron is stopped by the overbalancing motion of the scale-pan weighing device and is started up again at the reclosing of the scale-pan doors, by means of a snap switch.

An automatic catch pan, closed instantaneously by a solenoid when power to the spike-apron motor is cut off, postively prevents surplus stripping from coming over and supplementing the correct weight of stock already received.

The scale pan is stationary-sided. The drop doors alone are suspended diagonally from the counterbalance arms. The balancing assembly is all-aluminum and has ball-bearing fulcrums.

The diagonal placement of scale dumpings on the delivery apron insures a uniform flow to the card feed rolls.

Other features of the Type G feeder include oil-impregnated bronze and frictionless bearings, sheet-metal covers and panels, and transparent guards over the scale-operating mechanisms.

British Rectilinear Comb Handles Short Fine Wools

IMPROVED CONSTRUCTION of this new French comb, designed primarily for short fine wools as well as for merinos and crossbreds, makes for improved quality and decreased maintenance.

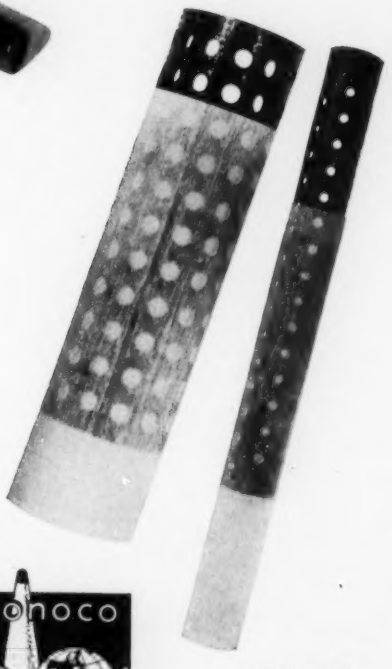
A new-model rectilinear or French-type comb that can handle short wools of varying staple length in the preparation of top has been made available by Prince-Smith & Stells Ltd., of Keighley, Yorkshire, England. The American distributor is Blake Electric Mfg. Co., 43 Commercial Wharf, Boston 10, Mass.

Improvements over previous models are the following:

1. A wedge-type nip form
2. A shortened distance from the nip to the pins
3. A heavier nip shaft to give a more rigid nip
4. Spring weighting of the nip
5. A new shovel plate to feed the slivers to the nip
6. Ball-bearing feed grid
7. New top draw-off-roll pressure adjustment
8. Rounded-tooth flutes on the draw-off roll
9. Reduction of roll and apron widths to 19¾ in.

IMPROVED... Package Dyeing *With* SONOCO'S DYTEX® TUBE with PLASTAVON SLEEVE

Precision Paper Products



A superior filter for package dyeing — designed to give you clean, even, "clear through" penetration. Standard sizes ⅝" I.D. x 6¾" long and 1⅝" I.D. in varying lengths. Special sizes available. The ⅝" x 6¾" tube can be furnished in certain colors. The exclusive Plastavon Sleeve allows more even dye distribution and better control of "flow." Also reduces slippage in primary winding.

SONOCO PRODUCTS COMPANY

MAIN OFFICE—HARTSVILLE, S. C.

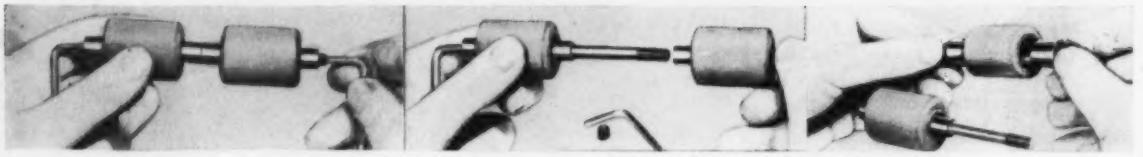
MYSTIC, CONN. LOS ANGELES, CAL. BRANTFORD, ONT.
PHILADELPHIA, PA. GARWOOD, N. J. LOWELL, MASS. GRANBY, QUE.

DEPENDABLE SOURCE OF SUPPLY

sonoco — ACROSS THE WORLD — PAPER CARRIERS — REG. U.S. PAT. OFF.

Knitting Arts Exhibition
Atlantic City
April 22-May 1, 1953
Booths 373 & 374

Ball-Bearing Top Rolls Are Easy To Disassemble



LOOSEN one set screw to disassemble — SLIP cot and sleeve from shaft — INTERCHANGE ball-bearing units as desired

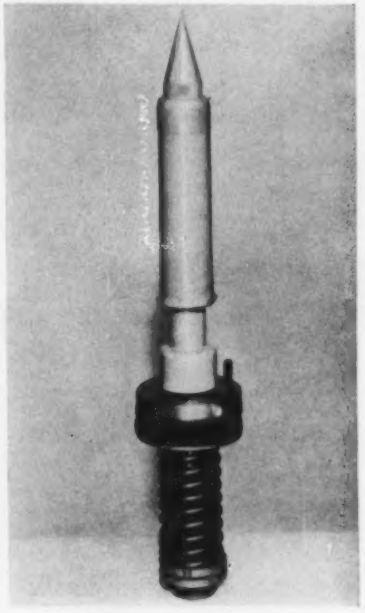
Ball-bearing top rolls for roving and spinning frames that have four easily interchangeable components per unit are now available from Faultless Caster Corp., 1521 N. Garvin St., Evansville 7, Ind.

Other advantages of the simplified-construction rolls are (1) low maintenance cost because of interchangeability of parts, (2) the heavy load rating of the ball-bearing units, (3) elimination of oiling at the frame, (4) reduced oil costs, (5) no high starting friction to cause ends down, (6) no lappng of lint on the journals, which are stationary, (7) almost no roll picking, and (8) no wear on cap bars and saddles.

The rolls come with four dimensions variable: overall length, from 4¾ to 7¼ in.; distance in from each end to outside roll bearing, from ⅜ to ⁷⁄₁₆ in.; width of rolls, from 1½ to 2¾ in.; and distance between inside bearings, from ⅞ to 1¾ in.

Standard outside diameter of uncovered rolls or sleeves is ¾ in. The manufacturer will provide cots of various outside diameters and types of materials as requested.

Hollow Twisting Spindle Has No Flyer, Ring, or Traveler



SEVENTY TO 100% BETTER PERFORMANCE is claimed for this high-speed crepe-yarn twisting spindle. Because of its simplicity and lack of parts, yarn tension is low and constant, and speeds up to 23,000 rpm. are possible.

The Sirnach HZS high-twist twisting spindle, which can double the twisting speed of ordinary high-twist twisters because it has no flyer, ring, or traveler, has been developed in Switzerland by Sirnach Machine and Metal Works Ltd. It is available in the United States from Werner Gabler Co., Inc., 1025 Connecticut Ave., N. W., Washington 6, D. C.

The spindle is used for inserting additional twist in yarn such as crepe and voile yarns. It is not used for plying two single ends together.

The spindle takes an ordinary spool package over its outer casing. This middle part of the spindle does not revolve. On top of this stationary shaft the rotating spindle head revolves and twists yarns satisfactorily at speeds up to 23,000 rpm.

The yarn is pulled up from the spool, through an opening at the top of the spindle head, and down through the center of the spindle. A yarn guide inside the revolving head gives the yarn its twist.

No flyer, ring, or traveler (other than the yarn guide inside the revolving head of the spindle) are necessary for the insertion of the twist.

The freshly twisted yarn is pulled on through the bottom of the spindle and is rewound onto cones.

Timestudies on the spindle in a commercial run in Switzerland show that up to 1200 spindles can be handled by a single operator, with a 12,000-rpm. spindle-head speed and ordinary amounts of yarn in the creel.

The new twisting method is suited for the production of crepe yarns made of rayon, silk, nylon, Perlon, and other synthetic fibers, as well as for the making of all types of cabled yarns.

Package-Dyeing Machine Uses High Pressures

A high-temperature package-dyeing machine that uses closed circulation under pressure has been made available to American mills by Mezzera S.p.A., Milan, Italy, through its agent, Ernest L. Frankl Associates, 22 E. 40th St., New York 16, N. Y.

The machine is manufactured under the Steverlynck patent and is said to remove most of the inconvenience encountered in the package dyeing of the newer synthetic fibers. It makes possible dyeing with liquids circulating in a closed circuit under pressure at temperatures up to 120° C.

A centrifugal pump maintains complete efficiency, the manufacturer says, even at elevated temperatures. Because of the internal pressure, it is possible to keep the liquid from bubbling at above-boiling temperatures.

Blends such as wool-nylon, wool-acetate, wool-viscose, and others can also be dyed with regular dyes in the unit.

A small sampling tank, which can be closed off, permits the checking of shades of the material while the machine is in operation. Another small tank allows for the adding of dyes and chemicals without any loss of pressure.

The unit is provided with a heat exchanger that can be used for cooling the machine down so that it can be opened very soon after dyeing has been completed.

BALANCED DEPENDABILITY . . . You can depend on Textile Spring-Beard Needles for exactly the right combination of strength and resiliency. Scientific controls — automatic and electronic — assure this balanced dependability at every manufacturing step, from the special steel formula, through precision tempering, to final exacting inspection.

Balanced dependability is just one feature of Textile Spring-Beard Needles. It means superior knitting of beautiful fabrics and greater profits from your needle bars.

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SPRING-BEARD NEEDLES

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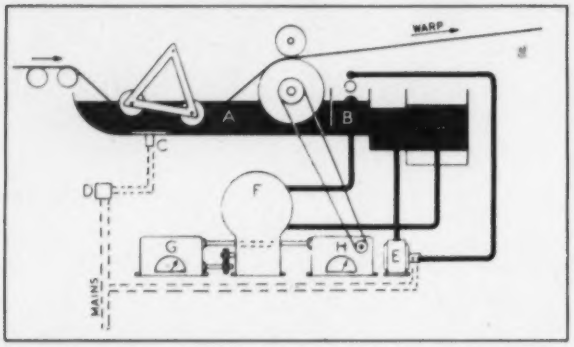
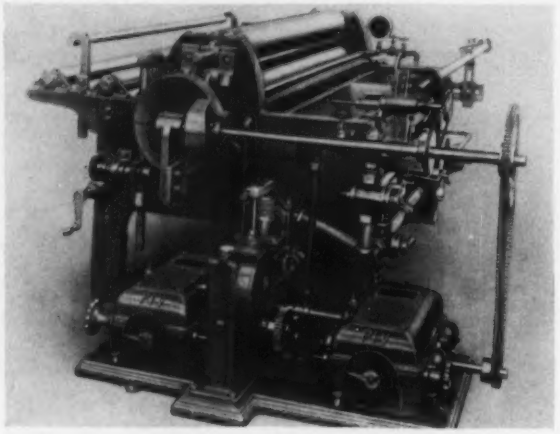
Percent of Size on Warps Is Automatically Controlled



CROSS-SECTIONAL VIEW of the automatic size box shows *A* the size being taken up, *B* incoming size concentrate and water being mixed, *C* size-level control, *D* electrical contact that starts and stops water pumping, *E* water pump, *F* metering pump that transfers concentrated size paste to size-box mixing area, and *G* and *H* variable gear-box control dials for obtaining the type of warp-sizing job desired.



GEAR-RATIO CONTROL DIALS in foreground are set by the operator (1) to the percent of size desired on the warp and (2) to the weight of 100 yd. of the warp to be sized. At the startup of the slasher and from then on, the automatic size box insures that an accurate and constant amount of size is applied to the warp. Any variations, such as in the size itself or in the warp take-up characteristics, are automatically compensated for.

A new size box that automatically blends size concentrate and water at a temperature just under boiling, that delivers all ingredients of the mix to the box at the rate at which they are required by the warp, and that at the same time dilutes the size concentrate to the point that insures the taking up of the size at the same rate it is being delivered, has been put on the market by Joseph Hibbert & Co. Ltd., Darwen, Lancashire, England.

Called the Shirley automatic size box, the new unit was invented and developed by the British Cotton Industry Research Assn. in Manchester, England, and is fully patented.

Two control dials beside the size box are provided, one for manual setting at the weight per 100 yd. of the warp to be sized, and the other for setting at the percent size pickup desired. The unit is automatic from then on.

Variations in size properties and warp pickup are automatically compensated for, and the percent size applied is said to be accurately maintained beam after beam and set after set. The results obtained are reproducible at any time.

How the Unit Works

The procedure for starting up is to estimate the approximate concentration of size needed in the box, then to let the size concentrate run into the box at the approximate rate of flow needed, dilute the concentrate to the size-box working level, and then start up. The box adjusts rapidly to the percent of size needed by the warp going through, and little or no badly sized warp is said to be produced by starting up in such a manner.

In operation, the metering pump delivers concentrated size from the mixing tank at the correct rate for the particular percent called for and feeds it across the warp by means of a distributor pipe.

A centrifugal water pump feeds the mixing trough with water just under boiling temperature, as necessary, to maintain a constant level in the size box. Delivery of water is from a spray pipe located just above the size-delivery pipe so that mixing is instantaneous.

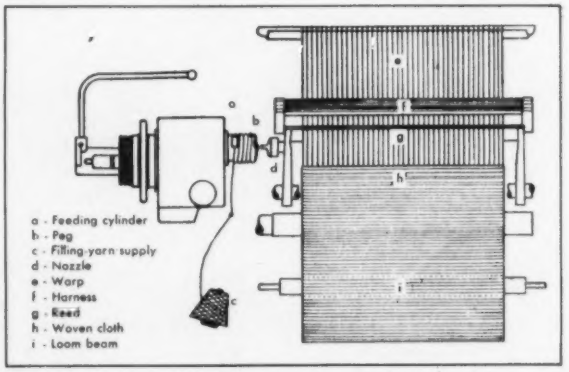
The stainless-steel size box has a capacity of 11 gal. A special type of piston pump insures an even delivery of size to it at all times, no matter what the size viscosity or warp speed may be.

If other conditions change in the middle of a run, the size concentration adjusts itself to keep the size take-up constant. Other variables might be an adjustment of the squeeze roll, size temperature, mixed warp yarns, twist factors, warp wettability, or moisture content of the section beams.

Shuttleless Loom Uses Air and Inserts 350 Ppm.

A shuttleless loom that blows its picks through a small shed at a speed of 130 ft. per sec. and 350 ppm., and which is said to have only 25% as many parts as an ordinary cotton automatic loom, has been developed in Sweden. The inventor is Max Paabo, an Estonian textile technician, and the loom has been named the Maxbo loom. At least 15 such looms are now in use in Sweden.

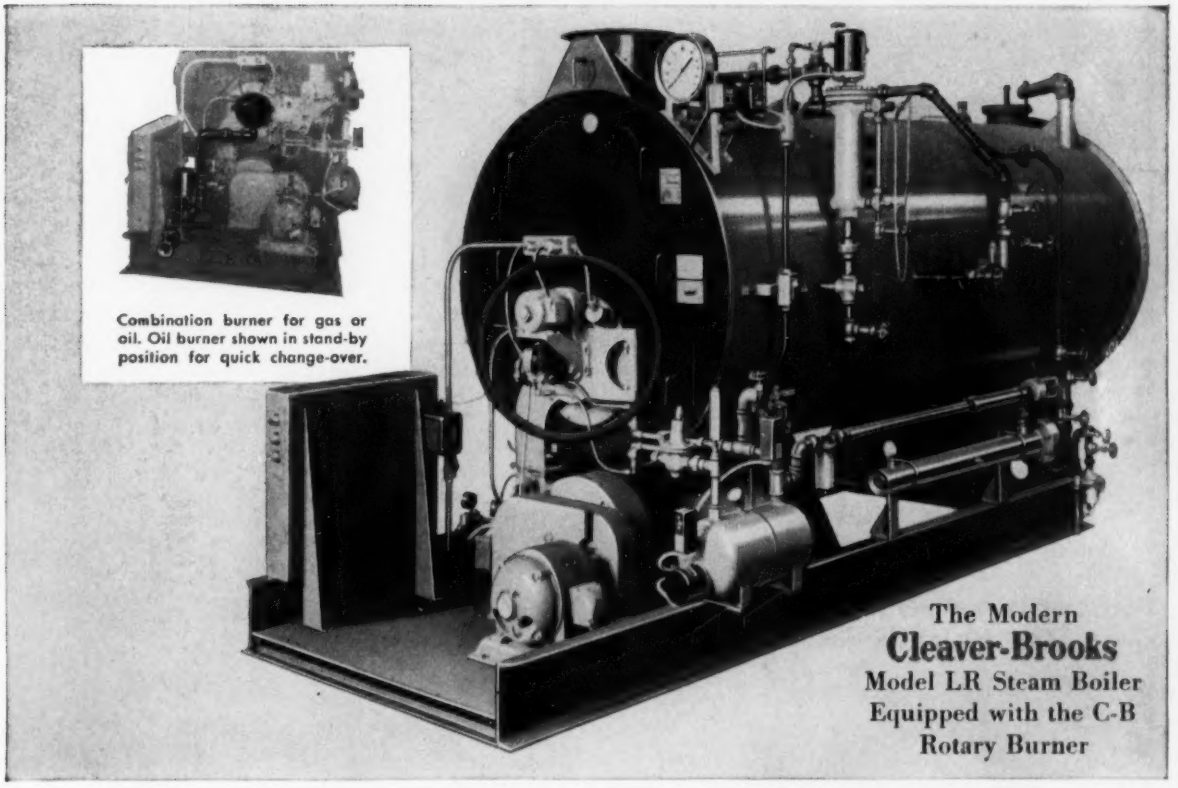
The filling supply is a single large cone located at the side of the loom. Yarn is drawn off first by a feeding cylinder and roll, with the axis of the cylinder in line with a blowing nozzle that points toward the shed opening at the selvage.



ELIMINATION OF THE SHUTTLE and use of air to blow picks through the shed makes this Swedish loom possible. It has only 25% as many parts as an ordinary cotton automatic loom.

unmatched Flexibility of operation ...and of quick fuel change-over

Combination burner for gas or oil. Oil burner shown in stand-by position for quick change-over.



The Modern **Cleaver-Brooks** Model LR Steam Boiler Equipped with the C-B Rotary Burner

✓ **Quick Steaming—Fast, effortless response to fluctuating steam demands**

✓ **Equally high efficiency using heavy No. 6 oils (or lighter oils) and all types of industrial gas**

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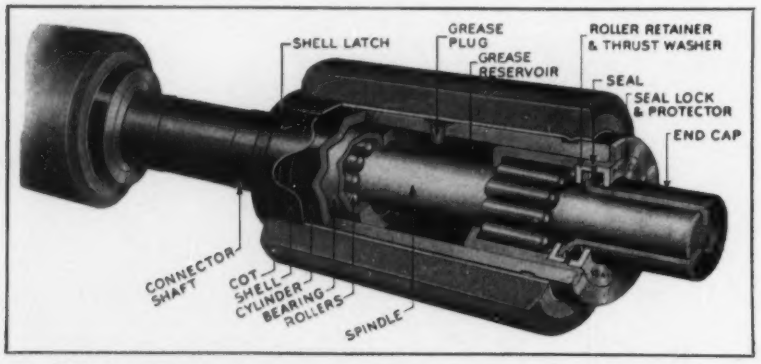
The feeding cylinder moves at a constant speed and winds yarn for the next pick on its outer surface. The end of yarn then runs into the nozzle. A peg protrudes from the nozzle end of the feeding cylinder to keep the yarn from slipping off ahead of time.

When the shed opens, the peg is momentarily withdrawn inside the cylinder, and a blast of air comes out of the nozzle to blow the loosened filling through the shed to the other side. A suction nozzle at the far selvage meets the air blast and receives the pick into itself. The air pressure required for a 30-in.-loom pick is beween 3 and 4 lb. per cm^2.

As the pick is being beaten up, the next filling length is being loaded on the feeding cylinder.

Grease-Sealed Top Rolls Have a 3-Yr. Guarantee



ONLY THE CYLINDERS revolve in this new top roll. Grease-sealed needle bearings are used. Shaft, saddle contact, and end caps are stationary.

A new line of top rolls, which will be replaced free within 90 days and which are guaranteed for three years, has been announced by Cole Engineering Corp., Columbus, Ga.

Each cot and cylinder in the new line is supported on the shaft by a pair of needle bearings. The grease seals are tight to fluid, air, and lint; and there is a liberal grease reservoir between bearings. Provision has been made for regreasing without disassembly.

Tests have shown the rolls to be in good operating condition after the equivalent of five years' running. The rolls are to be regreased at the time of frame overhauling, or at least once a year.

Top rolls of every type and size are being made, and top rolls with capless ends for conversions and new machinery are also included in the line.

The roll's cots are applied on a split core that snaps into place to assure steady running and concentricity, but cots can be removed quickly for rebuffing or replacement.

No alterations in cap bars or saddles are necessary to install the new rolls.

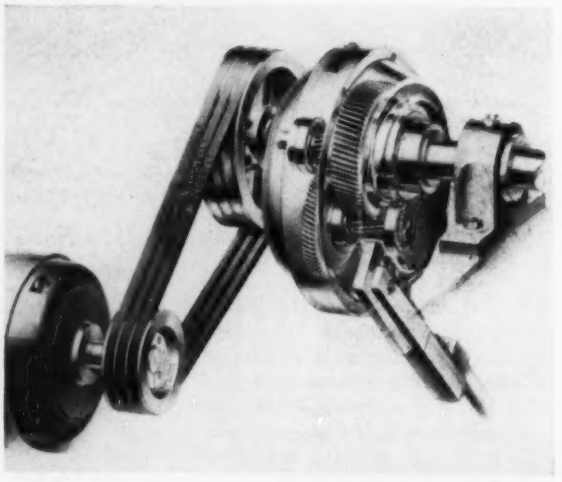
Battery-Powered pH Meter Gives 2,000 Hr. of Service

THREE ORDINARY RADIO BATTERIES power this portable Model 125 pH meter that has been put on the market by Photovolt Corp., 95 Madison Ave., New York 16, N. Y.

The instrument incorporates advanced designs of subminiature tubes and electronic circuits. A reading accuracy of 0.03 pH is possible. The electronic components are contained in a single plug-in unit that can be exchanged when necessary. Readings are taken on a single 0-to-14 scale without any switching of ranges.

Price of the instrument is $145. A carrying frame with beakers and plastic bottles is also available for in-plant use.

Speed-Reduction Units Are Easily Shaft Mounted

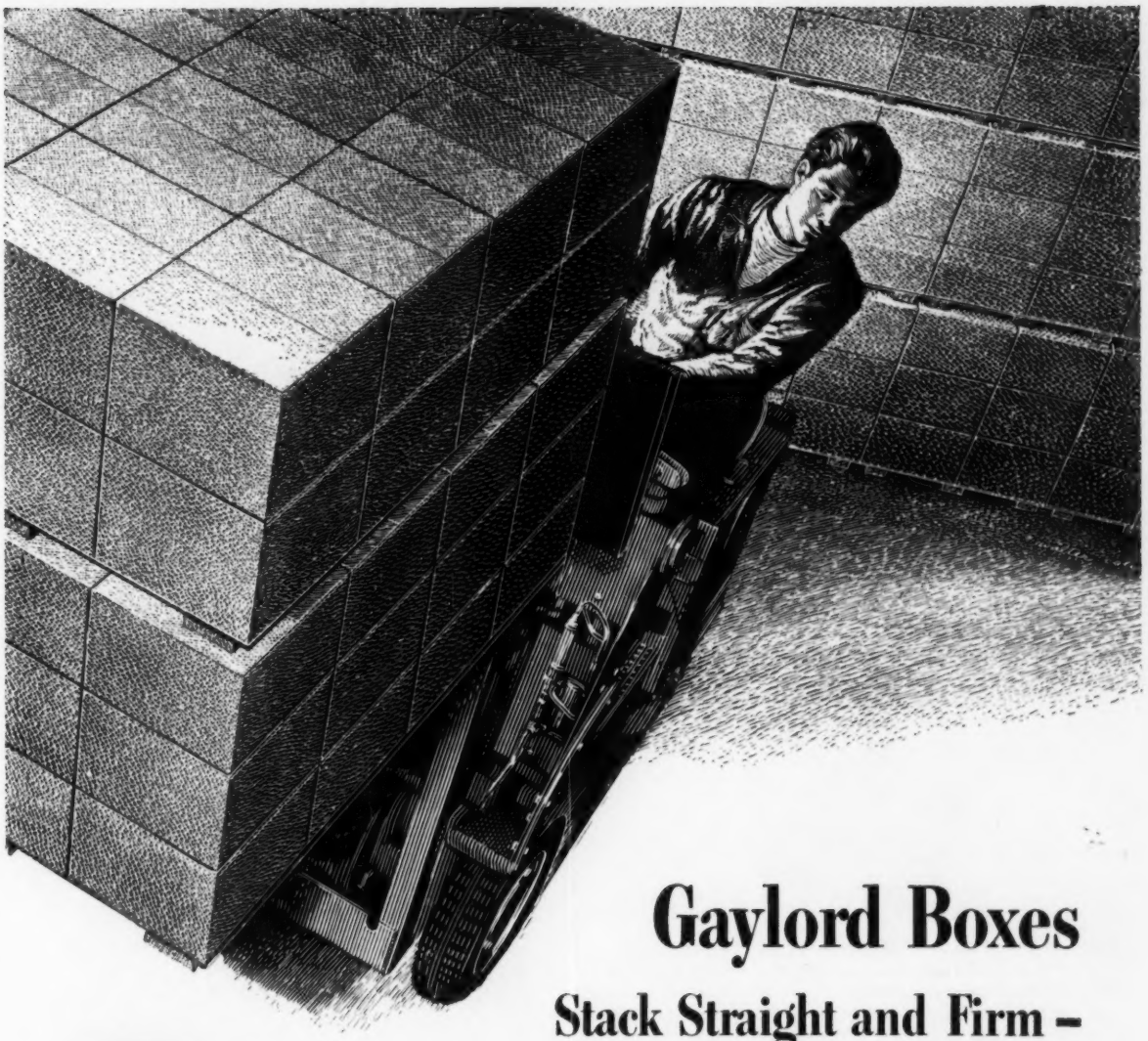


SHAFT-KING, a new series of 20:1 ratio speed-reduction units for shaft mounting, has been developed by American Pulley Co., 4200 Wissahickon Ave., Philadelphia 29, Pa.

The speed reducers consist of two trains of the single-helical type. Ball bearings and tapered roller bearings are used frequently in the construction. Gearing and bearings are lubricated by a gear and counter-shaft pinion that runs in oil in the lower third of the housing.

Input and output shafts are located above the oil level.

Split tapered bushings with lock nuts fit shafts up to 3 15/16 in. The reducers are available also with torque-arm overload release.



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Save Time and Labor in Handling

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Their unseen quality gives you an extra margin of safety.

The strong, rigid corrugations of Gaylord Boxes plus their accurate scoring assure flaps that close perfectly.

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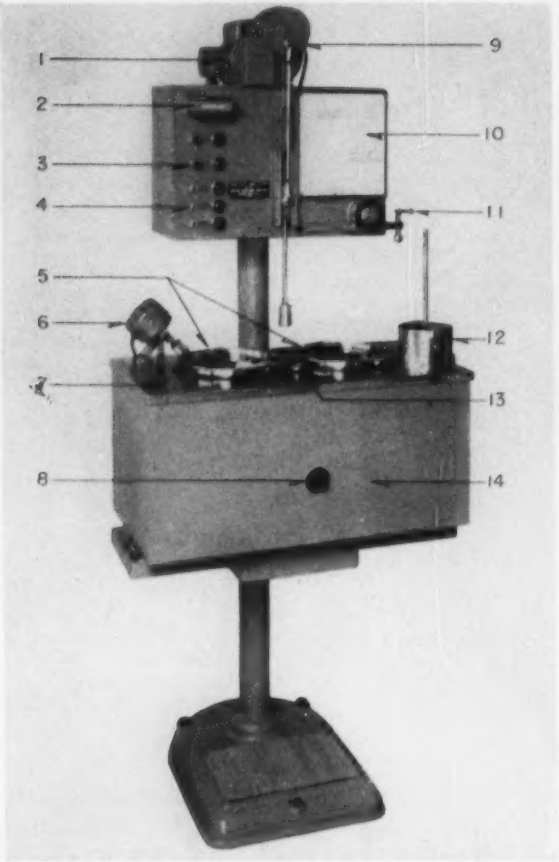
CORRUGATED AND SOLID FIBRE BOXES • FOLDING CARTONS • KRAFT BAGS AND SACKS • KRAFT PAPER AND SPECIALTIES

Detergency Tester Offers Time and Versatility Economies



COMPONENTS of the detergency tester include (1) a variable-speed drive, (2) an electric counter, (3) push-button operation, (4) electrical controls, (5) two operating positions, (6) a stirrer, (7) a stainless-steel work area, (8) a thermostat, (9) length-of-stroke control, (10) hand-calibrated graph, (11) control-of-frequency micrometer, (12) washing cylinder, (13) dial thermometer, and (14) stainless-steel-lined constant-temperature bath.

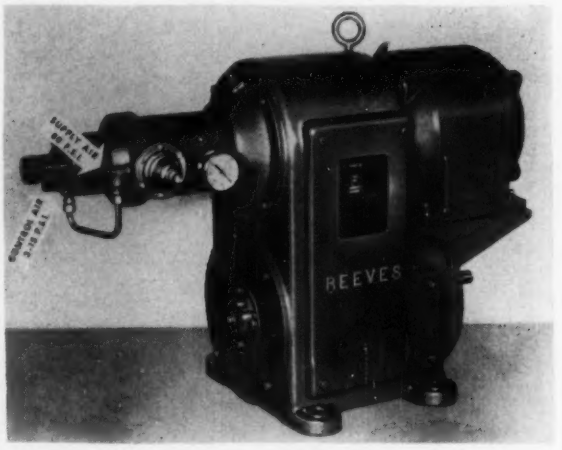
A detergency tester that by means of 4-in. disks of test fabric provides adequate data for most routine detergency tests has been made commercially available by American Conditioning House, Inc., 11–17 Melcher St., Boston 10, Mass. Called the Deter-Meter, the tester was originally developed for the Quartermaster Corps and has proved as dependable as the random-action type of laboratory wash test ordinarly used.

The instrument is capable of a wide range of mechanical actions that make it possible to duplicate the mechanical action of almost any washer, whether laboratory units or commercial washers; so the tester can be used to investigate the relationships between mechanical-energy input and detergency.

Each variable that affects the mechanical action of the tester is capable of being reset with a high degree of reproducibility.

Other advantages of the tester are its low coefficient of variation between tests, its ability to give 49 tests per square yard of soiled cloth, a reduction in manhours per test, and the instrument's suitability for tests in both aqueous and organic-solvent media.

Conoflow Cylinder Gives Control of Liquid Level, Flow

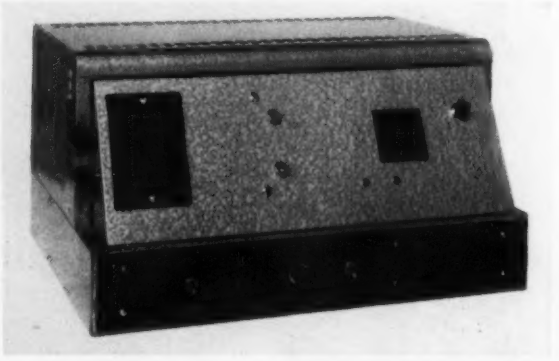


AIR PRESSURES from 3 to 15 psi. for instrumentation use are controllable automatically by means of the Conoflow device that has been added to its automatic-control line by Reeves Pulley Co., Inc., Seventh St., Columbus, Ind. The new control is available for all the company's integral-horsepower variable-speed drives.

The device permits the control of liquid levels in tanks, either open or closed, as well as the control of flow of liquid, gas, and chemicals; and pressure and temperature.

The new cylinder control is pre-lubricated; no outside lubrication is necessary. It can be operated from a mill's present air supply.

Electro-Mechanical Integrator Speeds Lab Test Results



TWO-COUNTER INTEGRATOR makes it possible to integrate separately the successive portions of a curve, such as the trace and retrace portion of a hysteresis cycle.

An automatic electro-mechanical integrator that provides the accurate time integral of any d.c. input function has been developed for textile research laboratories by Instron Engineering Corp., 2 Hancock St., Quincy 71, Mass. The instrument speeds the integration of stress-strain curves, the analysis of graphical data, continuous-process weighing, and the determination of total water content.

Two other uses are "totalizing illumination," applicable for weathering or fading tests involving light, and the integration of two independent variable signals with respect to each other (X-Y integration independent of time).

A measure of the time integral of the input is registered on a mechanical revolution counter geared to the output.

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Supreme's prime objective is building machines that will knit profits for their owners. You'll find the evidence in Supreme-equipped mills all over the world.

Supreme's engineering research is devoted to developing equipment which incorporates the latest advances in modern scientific knitting. This design progress continues to provide knitters with outstanding production rates . . . multi-machine versatility . . . new fabric possibilities. Yet, every Supreme model contains basic mill-proven construction features that make the Supreme-line a family of hard-working, long-lasting, low-maintenance money makers.

Model LRP
"Veni-Knits" striking new summerwear and underwear fabrics — Up to 28 Yds. per Hr.
Model SR
Knits plain or swiss rib — Up to 56 Yds. per Hr.
Model LT/SAAF
Knits regular (ML) and long-looped (LT), plain or 4-color striped terry. Convertible to (SA/AF) jersey.
Model SA/AF
Knits wide variety of variable stripes and patterns — Up to 40.5 Yds. per Hr.
Model ROF
Knits jacquard-type finelines patterns —Up to 45 Yds. per Hr.
Model IC
Knits fleece coatings — Up to 30 Yds. per Hr.
Model MJ
Knits wide diameter and body-size jersey —Up to 125 Yds. per Hr.
Model ML
Knits pile, loop terry and plush —Up to 25 Yds. per Hr.

Visit Supreme At The Knitting Show

For complete information on Supreme's latest developments in profit-knitting, be sure to stop in at SUPREME BOOTHS 219, 220, 221, 234, 235, 236 during the KNITTING ARTS EXHIBITION, ATLANTIC CITY APRIL 27 THROUGH MAY 1st.

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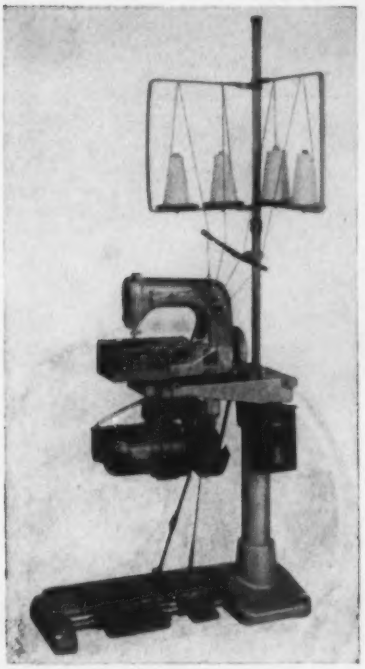
SK-158

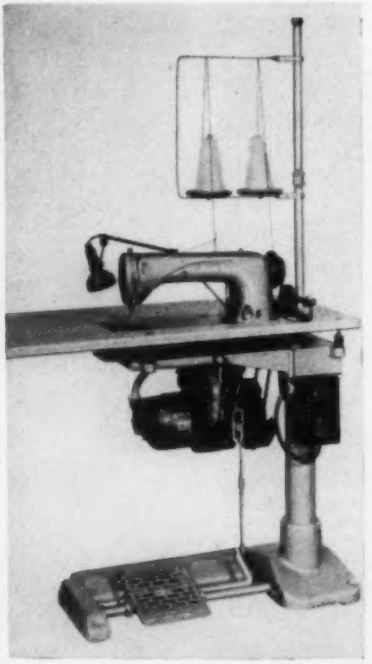
The output speed is made directly proportional to the integrand input signal through a controlled variable-speed drive with tachometer feedback. In addition, a high-speed electronic integrator instantaneously integrates any transients or tachometer response errors and applies this correction factor without any effort by the technician.

When used with a potentiometer recorder or other mechanical input, the signal is derived from a multiturn potentiometer, which can be supplied from a stabilized voltage source incorporated in the unit.

New Pedestal Mountings Ease Sewing-Machine Operations



TUBULAR-FABRIC SEWING is easier with a trayless pedestal mounting that facilitates handling of the fabric.

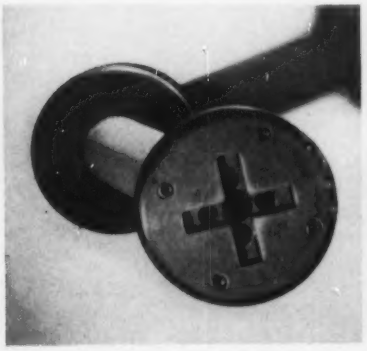


VARIOUS TYPES OF SEWING can be adapted for use with the new full-board mounting.

Two new types of pedestal mountings for industrial sewing machines have been announced by Union Special Machine Co., 400 N. Franklin St., Chicago 10, Ill.

One type, intended for tubular operations, positions the machine so that it overhangs the pedestal base to allow handling of tubular-knit fabric around the bed of the machine. No board or tray is required.

With the second type of pedestal, the sewing head is installed on the base instead of overhanging it. Various types of table boards can thus be used as needed.

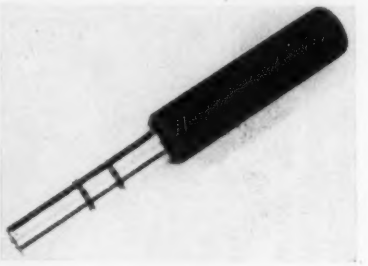


Double-Slotted Twister Bobbins Increase Wear Life

"X" MARKS THE SPOT where wear is greatest on driven twister bobbins. It's here that the twister-frame drive bar chews out the slots in time. So Akron Spool & Mfg. Co., Cuyahoga Falls, Ohio, has put on the market double-slotted bobbins to add wear life to the company's regular line of spools, without any increase in price.

The improved bobbins also have a new baked-enamel wrinkle finish on the steel barrel that gives an easy start and will not peel or chip.

Plug Gauge Tests Plain-Bearing Spindle Bolsters



WORN BOLSTERS are easily found by means of this gauge that is both tapered and machined to the same size as the inside diameter of a new spindle bearing.

To make it easy to determine whether bolsters for plain-bearing spindles are worn sufficiently to warrant their removal, Whitin Machine Works, Whitnsville, Mass., is offering a bolster-wear plug gauge as a spinning-frame accessory. The gauge consists of a shaft, of two diameters, attached to a short handle.

The smaller-diameter shaft at the end of the tool is the same size as the original spindle-bearing diameter. The second section of the tool is large enough to form a shoulder. This shoulder is the measuring point of the gauge. A groove is cut around the gauge $\frac{1}{4}$ in. above the shoulder. This cut is the limit line and is at a point .010 in. larger in diameter than the spindle bearing.

In practice, the plug gauge enters every new bolster for the length of the first section only. In worn bolsters, the shoulder will enter the bore until the tapered inside wall stops it. Bolsters worn anywhere up to the point where the groove $\frac{1}{4}$ in. above the shoulder of the tool still shows are considered still satisfactory to use.

When the gauge goes far enough into the bolster that it passes the grooved limit line, the bolster can be considered worn out. Such bolsters should either be replaced or watched carefully for oil losses and operating performance.

For mills using Oilite bolsters, a second limit line can be marked on the plug gauge to coincide with the mill's experience on when a bolster should be replaced.

(Continued on page 232)

CHEMICAL USERS' GUIDE To General Chemical Products for the Textile Industry

PRODUCT	AVAILABLE FORMS	COMMERCIAL STRENGTH (MIN.)	SHIPPING CONTAINERS	APPLICATIONS
Glauber's Salt, Crystal $Na_2SO_4 \cdot 10H_2O$	Colorless Crystals	96% $Na_2SO_4 \cdot 10H_2O$ 42.3% Na_2SO_4	Bags Fibre Drums	Dyeing assistant.
Glauber's Salt, Anhydrous Na_2SO_4	White Granules	99.9% Na_2SO_4	Bags Fibre Drums	Dyeing assistant.
Sulfuric Acid H_2SO_4	Liquid	66° Be 93.19% H_2SO_4	Carboys Steel Drums Tank Trucks Tank Cars	Carbonizing wool; dyeing; desizing cotton; souring; rayon spinning bath.
Acetic Acid CH_3COOH + water	Colorless Liquid	Various	Carboys Barrels Tank Cars Drums	Dye bath; souring agent; imparting scroop to cotton and silk.
Aqua Ammonia NH_4OH + water *(Ammonia)*	Colorless Liquid	26° Be 29.4% NH_3	Carboys Steel Drums	Wool scouring; dyeing.
Hydrochloric Acid HCl + water *(Muriatic Acid)*	Liquid	18° Be (27.92%) 20° Be (31.45%) 22° Be (35.21%)	Carboys Tank Cars Tank Trucks	Souring; removing hypochlorite bleach; dyeing.
Tetrasodium Pyrophosphate, **Anhydrous** $Na_4P_2O_7$ *(TSPP) (Pyro)*	White Powder	98% $Na_4P_2O_7$ (Equiv. 52% P_2O_5)	Fibre Drums Bags	Stabilizing peroxide bleaches; water treatment and dispersing agent; detergent.
Sodium Tripolyphosphate $Na_5P_3O_{10}$ *(Tripoly)*	White Powder	90-95% $Na_5P_3O_{10}$ (Total P_2O_5—56%)	Bags	Water treatment and dispersing agent; detergent.
Sodium Metasilicate $Na_2SiO_3 \cdot 5H_2O$	White Granules	29.0% Na_2O	Bags Fibre Drums	Kier boiling as detergent.
Sodium Sulfite, Anhydrous Na_2SO_3 *(Sulfite)*	White Powder	98.5% Na_2SO_3	Bags Fibre Drums	Rayon manufacturing
Sodium Bisulfite, Anhydrous $Na_2S_2O_5$ *(ABS) (Sodium Metabisulfite)*	White Powder	97.5% $Na_2S_2O_5$ (Equiv. 65.5% SO_2)	Bags Fibre Drums	Bleaching wool; anti-chlor after bleaching with hypochlorite; rayon manufacturing.
Oxalic Acid $C_2H_2O_4 \cdot 2H_2O$	Colorless Crystals	99.5% $C_2H_2O_4 \cdot 2H_2O$	Bags Fibre Drums	Bleaching; dyeing for mordanting wool with chrome.
Sodium Silicate $Na_2O \cdot X(SiO_2)$ + water	Viscous Liquid	38° to 52° Be Various ratios of $Na_2O:SiO_2$	Steel Drums Tank Trucks Tank Cars	Stabilizing peroxide bleaches.
Aluminum Chloride, Solution $AlCl_3$ + water	Liquid	32° Be 50% $AlCl_3 \cdot 6H_2O$	Carboys Tank Cars	Carbonizing wool.

The products advertised are commercial chemicals having various uses, some of which may be covered by patents, and the user must accept full responsibility for compliance therewith.

BASIC CHEMICALS

FOR AMERICAN INDUSTRY

OTHER PRODUCTS: Disodium Phosphate; Nitre Cake; Trisodium Phosphate; Sodium Hyposulfite; Aluminum Sulfate; Lead Acetate; Mixed Acid; Epsom Salt; Chrome Alum; Ammonia Alum; Potash Alum; Ammonium Sulfate; Ferric Sulfate (iron Copperas Nitrate); Ferric Nitrate (Iron True Nitrate).

FOR THE LABORATORY OR SPECIAL APPLICATIONS: BAKER & ADAMSON REAGENTS and FINE CHEMICALS

GENERAL CHEMICAL DIVISION

ALLIED CHEMICAL & DYE CORPORATION

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In Wisconsin: General Chemical Company, Inc., Milwaukee, Wis.

In Canada: The Nichols Chemical Company, Limited • Montreal • Toronto • Vancouver

NEW Dyes AND Chemicals

Two New Acetate Dyes Have Improved Fastness

A newly developed, slow-exhausting color, Eastman Fast Yellow 2R-GLF, made by Tennessee Eastman Co., Kingsport, Tenn., is a bright golden yellow said to have exceptional fastness to atmospheric gas fading, light, washing, sublimation, and perspiration. It is said that the slower exhaust rate of this dye makes it a valuable component with other dyes of the GLF series when an on-tone build-up is desirable. The dyestuff may be used in dyeing draperies and other fabrics where extreme fastness to light is required, and it is reported to have very good fastness to light on pastel shades. It is not dischargeable.

The other new color, Eastman Diazo Navy Blue RB, is a dispersed acetate dye that, when diazotized and developed with BON, is said to give excellent shades of navy blue with excellent fastness to light, washing, perspiration, and sublimation. On blends of acetate and viscose, the color is said to reserve the viscose and eliminate clearing that is normally required, even in heavy shades.

New Catalyst for U-F Resins

Alpha-chloroacetamide, manufactured by Chemical Development Corp., Danvers, Mass., is said to act as an effective acid-type catalyst for urea formaldehyde, melamine formaldehyde, and similar resin-forming materials. The generation of heat produces a low pH that further acts to catalyze the reaction.

New Acetate Printing Blue Is Easily Dispersible

A new dyestuff produced by Tennessee Eastman Co., Kingsport, Tenn., called Eastman Printing Blue 2B, an anthraquinone-type dye, is recommended for application printing of acetate fabrics because of the reported excellent dispersibility. The color is said to have excellent resistance to sublimation and very good fastness to wet processing. It is said to produce a clear, bright blue that fixes easily on steaming. The lightfastness is reported very good in medium and heavy shades of blue on acetate.

Fiber Identification Reagent Is New Laboratory Aid

A new reagent for tinting fibers for the purpose of identification is imported from Europe by Brown & Forth Ltd., 55 W. 42nd St., New York, N. Y. Called Neocarmin, the product is said to be capable of rendering the individual types of fibers recognizable within minutes by color differences.

New-Type Starch Product Is Noncongealing

A specially modified starch product made by National Starch Products, Inc., 270 Madison Ave., New York 16, N. Y., is said to give a noncongealing solution that is almost clear and colorless. The product is recommended by the makers for warp sizing of cotton, spun rayon, worsted, and filament viscose yarns.

Low-Cost Humectant Is More Hygroscopic Than Glycerine

A new product of Hart Products Corp., 1440 Broadway, New York, N. Y., Hartexsol C, is said to be a new development in the field of humectants, more effective than c.p. glycerine in attracting moisture. This water-white viscous liquid is claimed to show approximately 10% greater hygroscopicity than glycerine.

Carbide Research Cuts Dynel Dyeing Cost

Carbide's Development Service Lab reports cost cuts on individual colors ranging from 30 to 59%. The new dye formulations are equal to or better than the old in colorfastness and depth of shades achieved, according to cotton wash and Fadeometer tests. Improvements by reformulation were obtained primarily in acetate and acetate-acid color dyeings and are the results of a program devoted to the more effective use of the newer dyestuffs and methods of application.

The figures given cover costs of dyes and assistants only and do not include scouring or finishing agents.

The 59% cost decrease was achieved in dyeing all-dynel sweater fabric in a green shade. While the cost of chemicals and dyes for the dyeing procedure formerly amounted to $16.09 per 100 lb. of fabric, the new formulation, employing two new acetate dyes, brought this cost down to $6.56, a saving of $9.53.

Other colors responded similarly to reformulation. A standard light blue all-dynel blanket fabric, formerly acid dyed at an approximate cost for chemicals and dyes of $2.38 per 100 lb. of fabric, was dyed with a mixture of acid and acetate dyes for $1.24, a saving of 48%. A fur-brown-shade formula on dynel stock for a deep-pile fabric was reformulated to include an acid blue instead of a more expensive acetate blue at a saving of 30%. New formulations used for maroon, navy blue, and black shades in stock dyeing resulted in savings of 56, 48, and 30%, respectively.

While substantial savings can be made by replacing certain expensive but customarily used dyes and chemicals with others, dyers must note that in some cases the less expensive dyes may require closer control in dissolving. The less expensive Capracyl Blue G dye used in the fur-brown formula must be properly dissolved and distributed evenly on the fiber, as the dye does not "migrate" as acetate colors do, and it may not level on as well.

Properly handled, however, the new formula gave excellent results. Lightfastness was "very good" at 20 to 40 hr., with only a slight break at 60 hr.

Revision of the formulas for dyeing dynel socks is in progress. Similar re-evaluations of the formulas used for dynel stock will be made in the near future.

A typical dynel piece-dyeing procedure follows for 100% dynel knit fabric:

Tergitol Wetting Agent 7	1 %
Calgon	1
Eastman Fast Yellow GLF	1.42
Eastman Fast Blue GLF	0.53

Approximate cost of all dyes and chemicals for 100 lb. of fabric – $7.09

Dyeing and Finishing Procedure

Bath ratio 30:1

1. Prepare dyebath at 100° F., add Tergitol 7 and Calgon.
2. Add dispersed dyes, raise temperature to 212° F, and run for 1½ hr. Cool slowly and rinse.
3. Scour at 160° F. with Tergitol Dispersant NPX and Calgon. Rinse and dry.
4. Reluster under conditions established at the dyehouse.
5. For maximum washfastness scour again at 160° F. with 2% soap, 1% soda ash for 20 min. Dry at temperatures below 210° F.

Specific recommendations on the new dyeing procedures for dynel in stock, top, and other forms are now available on individual data sheets produced by Carbide and Carbon Chemicals Co.

Standafin® 77

stands the test of **Time** on

WHITES

HERE'S A FINISH for milady's undergarments, non-irritating to the most delicate skin, that does not discolor whites and pastels even under long storage.

On nylon, acetate and rayon fabrics Standafin 77 imparts a pleasing, durable finish having excellent drape and nonslip properties. (Interesting effects are also obtained on spun fabrics.)

Standafin 77 is a water soluble resin easily applied on conventional finishing equipment. No curing is necessary.

Our technical staff has facts and figures to prove that Standafin 77 stands the test of time . . . fabrics finished with Standafin 77 remain white indefinitely during mill or shelf storage.

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Now you can be sure of CLEANER YARN...

one of many advantages of this new uptwister spindle

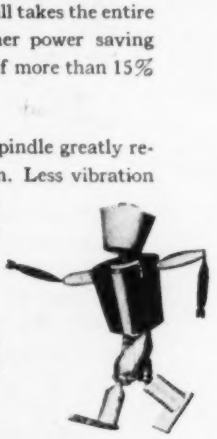
UNIFLEX SPINDLES have no free oil. Therefore no oil spray can soil your yarn. Proof is shown by absence of oil drip when fully lubricated step is held upside down. Sealed felt pads, lubricated by injection only once a year, meter oil to the bearings through porous bronze bushings.

FLEXIBLE LOWER BLADE cuts down vibration . . . reduces bearing loads . . . lengthens spindle life . . . lowers power consumption. Uniflex Roller Bearing Spindles are standard equipment on all new Unirail Uptwisters.

Reduce your costs, too, with NEW UNIFLEX SPINDLES on your uptwisters

Lower Power Costs. Because the Uniflex lower blade reduces bearing loads. Also, both upper and lower bearings are especially designed to cut power requirements, while a hardened steel ball takes the entire thrust load on a small area of contact . . . another power saving feature. Field tests to date indicate power savings of more than 15% over plain bearing spindles.

Lower Maintenance Costs. Because the Uniflex Spindle greatly reduces oiling and cleaning cycles and other attention. Less vibration means less heat and wear, for longer, trouble-free service life. Uniflex Roller Bearing Spindles not only assure a cleaner product but more economical production.



WRITE FOR BULLETIN S1. Get all the information about how Uniflex Spindles make uptwisters produce more and better yarn at lower costs.

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LETTERS FROM OUR READERS

Address all communications to:
Editor, *Round Table*, TEXTILE WORLD
330 West 42nd Street, New York 36, N. Y.

Round Table

ACETATE IS STABLE TO HEAT

Dear Editor:

In our survey of the literature of articles and other publications giving the physical properties of acetate yarn and/or fibers, we find that many articles contain statements such as the following:

1. "Acetate decomposes at 95 to 105° C. (203 and 221° F.)"
2. "Acetate loses strength when heated above 200° F."
3. "Acetate loses strength above 200 to 220° F."

Since these statements do not conform with the facts, we have spent considerable time in an attempt to trace down the source of these misstatements. We have been unable to trace the statements back to any tests or factual evidence.

In order to ascertain the facts, a large number of tests on acetate yarns were run. In one set of tests, the yarns were stored at 100° C. for various lengths of time and then tested at that temperature. In another set of tests, the yarns were stored at 105° C. but tested at standard conditions (70° F., 65% r.h.).

The results of these tests showed that there was no difference in the tenacity of acetate when tested at 221° F. or at 70° F. The elongation, when tested at 70° F., was 25%; at 221° F., 21%.

Our tests showed that a yarn that had an original tenacity of 1.05 and an elongation of 22.7% had a tenacity of 1.06 and an elongation of 23% after one week's continuous storing at 105° C. At the end of two weeks, the tenacity was 1.01 while the elongation was 22.6%.

These data show that no significant change took place when acetate yarn was heated for two weeks at 105° C.

A. F. TESI

Celanese Corp. of America
New York

CLOSER LIAISON NEEDED BETWEEN SCHOOLS AND INDUSTRY

(The following is a summary of an address given by President Martin J. Lydon of Lowell Textile Institute at the concluding luncheon of the TRI annual meeting, Hotel Commodore, New York, N. Y., November, 1952.—Editor.)

The purpose of higher education is to transmit, increase, and interpret knowledge.

A broadened base for education is necessary today, with more emphasis on increasing and interpreting knowledge. The "Why?" of things should be explained in more detail so that future leadership can be developed early at the same time the student is specializing.

Schools should more and more develop the research point of view among students so that the limits to knowledge can be pushed farther out. Fundamental and applied research and the publication of these results should be undertaken as well. Schools should at the same time educate for management responsibilities.

Finally, industry and research people and textile schools should march hand in hand. Education institutions are a bridge between the past and the future that the present should use.

Specific recommendations are that there should be exchange professorships between schools, academic leaves of absence for industrial-research purposes and for other industrial positions, industrial leaves of absence for teaching purposes, and an integration of education and industry by an ever-increasing interchange of ideas by every possible means.

GOOD SPINNABLE FIBER IN WASTE

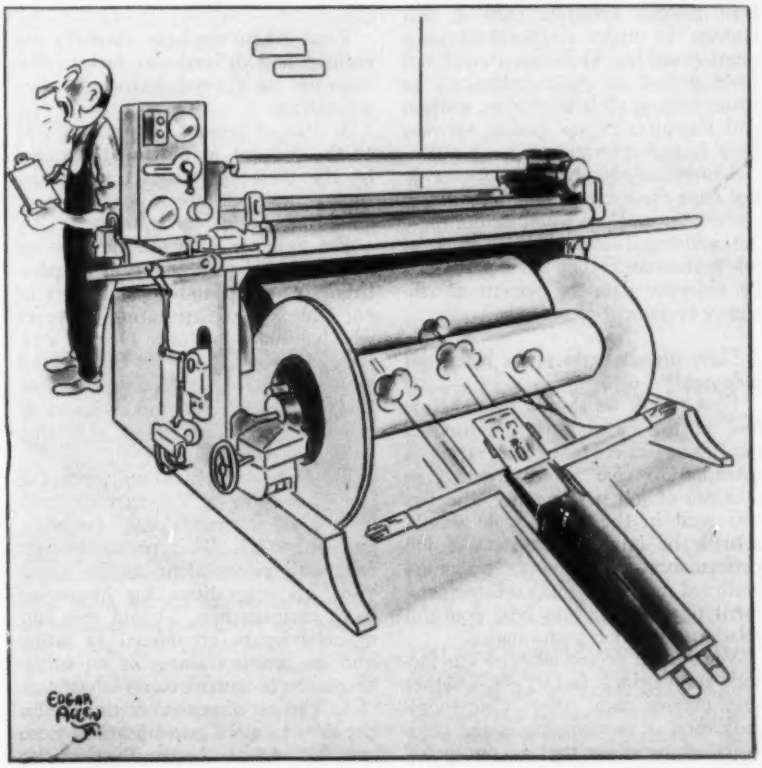
Dear Editor:

The article, "Neps and How To Control Them," [TW, May, '52] was the finest and most complete report on neps that I have ever read. Congratulations to Mr. Bodgan, Mr. Feng, and Mr. Newell for an excellent job. Their research work on this nep problem will prove of great assistance to many boss carders and superintendents.

I should like to see this trio of efficient researchers tackle the problem of controlling and reducing the amount of good spinnable fiber in card-flat waste. Very

(*Continued on page 222*)

TEXTILE TICKLES . . . . . *By Edgar Allen, Jr.*



"Don't get too close, MacWeasel—those rolls could really flatten a guy out!"

Pointers FOR SUPERVISORS

How To MAKE RATING EASIER

► Employees should be rated in terms of job performance and not generalizations. The supervisor should not be forced to rely solely on his own judgment when he is rating employees but should have a sound system of rating to follow.

By **J. E. GARDNER,** Asst. Director of Personnel Research, Fieldcrest Mills

ALL SUPERVISORS, for some reason or other, are frequently faced with the difficult and burdensome task of evaluating the job performance of employees. Despite all the experience we have had with merit rating and employee evaluation, the task remains difficult. It's a hard task because it requires judgments, and judgments are rarely easy to make.

If this is so, evaluation becomes easier—and more accurate—if we reduce the need for judgment or at least provide evidence that is clear enough to make an accurate judgment possible. Thus, we should not force ourself to make judgments on those factors, such as quality, output, and absenteeism, on which we may have factual information.

Unfortunately, on many jobs we do not have these clear-cut indices of job performance. Even when we do, there are additional important aspects of job performance that are not covered by objective data on percent of efficiency or percent of seconds.

How do we reduce the need for judgment?

First of all, we should take a close look at the factors that are used in our rating scale. Since the rating is intended to give a measurement or estimate of job performance, the factors used in the rating scale should actually be important aspects of job performance. Many rating scales are cluttered up with traits of temperament or character that bear doubtful relationship to job performance.

We should decide whether our factors are distinct factors or whether they overlap each other. One rough indication of overlapping is the similarity of meaning that is uncovered when we attempt to define the supposedly separate factors. In many cases we find that one factor will serve in the place of two or three.

As previously stated, when quality and quantity of production are factors, we should deal with them separately if we have factual data on them. They are still part of the total evaluation, but we can set them apart as items of which no judgment is required. We can similarly handle other factors on which we have factual and recorded data.

Even when we have carefully examined and defined our factors, the very use of general factors presents difficulties.

1. Use of general factors may add to the amount of judgment required by the mere fact that it forces the supervisor to classify various types of employee conduct or behavior.

For example, let's assume that we have included such factors as cooperativeness, loyalty, and dependability in our scale and we are rating a weaver who habitually lays out. Despite arbitrary definitions of the factors, the rater may still be troubled by this question: Is absenteeism an evidence of lack of cooperativeness, lack of loyalty, or lack of dependability?

To take another example, suppose we are judging a loomfixer on such factors as resourcefulness, initiative, and judgment. This particular fixer frequently passes along to the supervisor his suggestions for improving loom maintenance. Should this sort of behavior be considered in rating him on resourcefulness or on initiative or on judgment or on what?

2. The use of general factors invites the rater to make generalizations from specific acts of the employee being rated. If an employee habitually fails to get along with his fellow workers, there is good reason to rate him low on cooperativeness. But the danger is that the rater may rate an employee low on this factor on the basis of one outstanding instance of non-cooperation that is not typical of the employee.

We are led, then, to this conclusion: Rating would be an easier chore and less of a burden on the rater's judgment if the rating were based on the way the employee acts on the job and if it did not require the rater to classify behavior under certain headings or invite him to generalize too freely.

It is doubtful whether raters, as a general rule, size up an employee by applying the broad adjectives or abstract nouns used in many rating scales. We tend instead to think of the specific things the employee does that are good or bad, effective or ineffective.

A rating becomes more meaningful if the employee is evaluated in terms of what he actually does and how he acts rather than what sort of fellow we think he is. If we rate the employee by describing how he acts, there is no necessity for classifying his behavior except to say it is effective or ineffective.

A relatively new type of rating, called a forced choice rating, attempts to secure evaluations on the basis of statements of behavior. By prior investigation (including descriptions of how successful or unsuccessful employees act) statements are secured which differentiate between good and poor workers along with other statements which do not so differentiate. These are "action" statements, as, for example (on a loomfixing job):

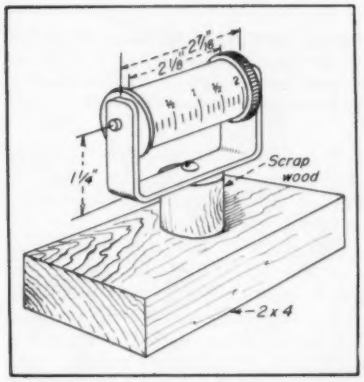
Doesn't wait until loom falls on floor.

Every loom he goes to he says, "It's the power."

He'll take a hammer and knock

(*Continued on page* 192)

Kinks AND SHORT-CUTS



THIS MIDGET WINDER is easily made and can be used to find yarn diameter in a practical way.

Use This Midget Winder To Determine Yarn Diameter

Actual yarn diameters are important in designing cloth constructions because the thickness of the yarn governs the number of ends that can be laid side by side in the fabric.

Formulas for estimating yarn diameters often do not give actual measurements. There are many factors affecting these diameters—nature of the stock, amount of twist, degree of parallelization of the fibers, and humidity.

You can make a gadget that will tell you exactly how many ends can be put in 1 in. of the fabric you're planning. With this device, all you need is a sample of the yarn to get your result.

Here's how to make it:

Take a piece of 2 x 4 about 4 in. long to use as a base. Fasten a small piece of scrap wood to the top, as shown in the sketch.

Bend a piece of $\frac{1}{8}$ x $\frac{1}{2}$-in. flat metal stock about 6 in. long into a U. The sides should be $2\frac{7}{16}$ in. apart. Fasten the U to the wooden base.

Make a wooden cylinder that has a 3-in. circumference. The diameter will be slightly under $\frac{31}{32}$ in.; so you can use a length of 1-in. round wood. The cylinder should be $2\frac{1}{8}$ in. long and should have end flanges to keep yarn from running off the cylinder barrel. One flange is $\frac{1}{16}$ in. thick and is notched; the other one is $\frac{1}{8}$ in. wide and is knurled.

Mount the cylinder in the bracket, as shown in the sketch.

Draw a straight line across the cylinder, and make a notch in the left flange at the end of the horizontal line. This notch is to hold the yarn.

Divide the line across the cylinder in $\frac{1}{4}$-in. sections.

To use the yarn winder, fasten the yarn in the left-hand notch and start winding. Keep the turns close to each other. Wind $\frac{1}{2}$ in. across for fine numbers, 1 in. for medium numbers, and 2 in. for coarse numbers.

Count the number of turns along the measured line. From the number of turns and the width covered it's easy to calculate either ends per inch or yarn diameter.

If you attach a revolution counter to the cylinder shaft, you can read the number of turns you have made without counting them.

While you have this amount of yarn wound, you can inspect it for neps. And you can cut it off, weigh it, and check yarn number.

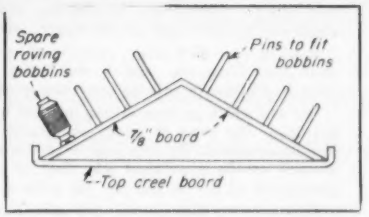
Don't Burn the Bench

In our shop we use electric soldering irons for a lot of little jobs. It is a common practice for us to switch on the iron and keep it going for several hours while we bend to shape small bits of metal prior to soldering. In the absence of proper stands that hold the heated end clear of the bench, we often set the iron on a pair of pliers or some other tool that is lying around. Then we find we need the pliers, and they're too hot to handle.

A simple soldering-iron stand that will avoid burning the bench top and will conserve the heat of the soldering bit can be made from a photographic-film spool bent as shown in the illustration. When the iron is resting on the spool there is only point contact between the two, and heat is not drained away from the iron. *Clifford T. Bower, London, England*

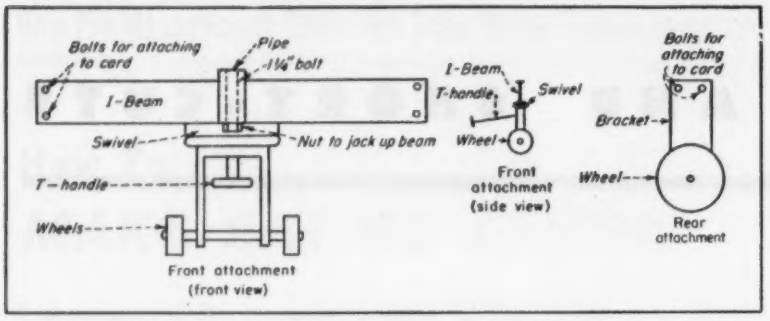
BENT FILM SPOOLS hold the soldering iron off the bench and don't absorb heat from the iron.

Special Pin Boards Keep Nylon Roving Clean



YOU CAN'T LAY UP nylon roving like you do cotton because it gets dirty so easily. We built the pin boards shown above to hold our spare bobbins of nylon roving. Each board holds 32 bobbins. The boards fit on top of the top creelboard. *Walter Watts, Charlotte, N. C.*

Moving Cards? Try This Method



FRONT DOLLY has a built-in jack, and the card rolls on two front and two rear wheels.

We're in the middle of a modernization program that involves moving a lot of machinery. Our cards, for instance, have to be moved to the other end of the room.

A special dolly we've built makes moving cards easy. The dolly consists of an I-beam as wide as the card, a 360° swivel section, and a pair of 10-in. wheels. These three elements are connected as they are shown in the sketch.

At the center of the beam there is a pipe in which is set a 1¼-in. bolt with a nut on the bottom. This nut-bolt combination acts as a jack to lift the card.

The coiler stand and front end of the card are removed, and the I-beam is bolted to the card.

At the back of the card, the bolts holding the end gate are removed and replaced with longer bolts. A 10-in. wheel is then bolted to each side. The rear bracket shown in the sketch is used.

After the front and back attachments are secure, the nut under the I-beam at the front is turned to raise the card, and the card is soon fully supported by the wheels.

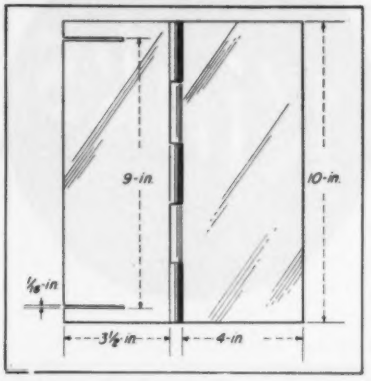
A T-handle on the front dolly makes it easy to pull and steer the card to the new position.

Paint Concrete Floor To Ease Vibration Trouble

Oil is harmful to concrete floors and can cause the foundation under machines to be damaged by vibration.

If you paint the floor with an oil-resistant paint, you'll stop possible trouble before it starts. Be sure to cover an area about a foot around the machine, and paint the bolts as well if there are any. *W. E. Warner, Essex, England*

Measuring Plate Helps To Figure Warp Take-Up



HINGED TEMPLATE holds the warp tight and flat as a few ends are marked 9 in. apart. Distance between marks is then measured in the fabric, and take-up is calculated.

We wanted to know how much take-up we were getting in weaving, and we didn't have a take-up tester. So we made one of our own.

The plate, as shown in the sketch, is about 8 x 10 and has two ⅛-in. slits 9 in. apart. The plate is hinged with a butt hinge so that the surfaces will lay together, with the warp between, while the ends are marked. We mark the warp twice, about one-third of the way in from each selvage.

After the marked ends have been woven, we take the fabric from the loom and measure the distance between the marks. The answer we get, based on this measurement, is close enough for practical use. *J. W. Townsend, Jr., Bemis, Tenn.*

$500 for Best Kink in 1953
$25 for Best Kink Each Month

In Addition to Space Payment on Acceptance

You undoubtedly know many Kinks and Short-Cuts that are helpful to mill operators. Write them down and send them in. We pay promptly on acceptance—before publication. In addition, your Kink may win the $500 check for the best Kink of the year or the $25 check for the best Kink of the month; maybe both!

Send in your Kink now. There is always a contest going on. The more good Kinks you send in, the better your chances of winning a prize in addition to earning some easy money for every Kink accepted.

We will polish up your writing and will have an artist make finished drawings. But send in plenty of details so that your Kink can be clearly explained. Be sure your sketch is clear and well labeled, but it need not be a polished job. Best of all, send us a good glossy photograph of it—we will pay you extra if you do and we can use it.

Look over the Kinks in this and other issues. You will get ideas you can use as well as inspiration for Kinks you can send in. We like items that pertain to ways for improving machines, new devices that a mill man can build, attachments or methods of merit—anything that will cut costs, improve quality, or help production.

Your published Kink will be judged impartially by other mill men.

In cases of ties, duplicate prizes will be awarded.

RULES OF CONTEST

1. No limit to number of entries.
2. New $25 prize contest every month, $500 prize contest for the year. Monthly contest confined to Kinks published that month, yearly to those published in calendar year 1953.
3. All Kinks paid for on acceptance; extra payment for photographs. Drawings need not be finished (clear detailed pencil sketches will do).
4. Previously published material not eligible for prizes.
5. Unless you advise to contrary, we assume we may sign your name to Kink when published.
6. Prize winners will be selected by readers, a different group each time. At least 200 will be asked to select preferred Kinks in each issue. Their votes will select the best Kink, and their decision will be final.

Send Kinks to:
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Disposal of Empty Cones Made Easy by Simple Rack

EASILY CONSTRUCTED RACK to store empty cones is placed between lines of knitting machines to keep the knitting room neat.

Empty yarn cones proved a nuisance in our knitting room. When a cone became empty, our knitters would leave it on the yarn rack, around the edges of the machine, or even on the floor. The cones made the knitting room appear untidy, and they were also a safety hazard.

We constructed a wooden rack that holds 12 to 16 stacks of empty cones. Short wooden pegs are mounted in the wooden base. The racks are conveniently placed throughout the mill behind the knitting machines.

At the end of the third shift all cones are inspected. The good ones are returned to the winding room and the damaged ones are disposed of.

Safety Suggestions

▶ Always put the safety latch on while you oil a frame.

▶ Push roll pickers under the frame when you're not using them. And hang them up when you're all finished.

The Avondale Sun

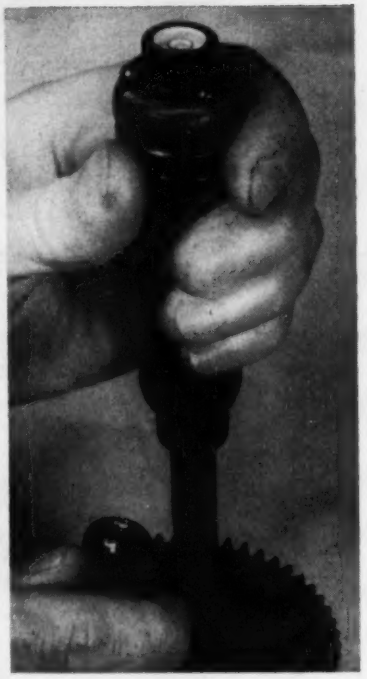
Built-in Spirit Level Helps You Drill Vertically

For odd holes, it is usually quicker to use an ordinary hand drill than it is to plug in a power-driven portable drill. And often power is not handy anyway. But one trouble with a hand drill is the difficulty of making a hole that is perpendicular to a horizontal surface.

By fitting a circular spirit level to the top of the drill handle, you can hold the drill perfectly even at a right angle.

The circular level is the type used on surveying instruments and can be purchased from scientific-material supply houses or war surplus dealers. The level has the virtue of working like a plumb bob and gives full-circle indication that the drill is truly vertical when the bubble is in the center of the black circle marked on the glass.

When first mounting the level on the drill, grip a piece of drill rod in a V-block on a level table. Then mount the drill on the piece of vertical rod by gripping it with the drill chuck. The level is set so that the bubble is centered by inserting bits of paper packing under the three screws that hold the level in its position on the drill. *Clifford T. Bower, London, England*



HAND DRILL equipped with a spirit level enables you to drill holes that are perfectly perpendicular to a horizontal surface.

Stop Splinters With a Linoleum Top

The wooden table top of our laying-up machine had become badly splintered by the leading edge of the cutter. The surface had been refinished several times, and wood was scarce. So we had to find a solution, using some other material.

We filled all the holes and irregularities with wood filler and sanded the surface. Then we coated the surface with an adhesive and laid linoleum all over the table.

The linoleum was carefully rolled to prevent spreading and buckling later under the weight of the fabric. We left the original tracks for the machine to run in—just put the linoleum to the track edges.

Our working surface is now perfectly smooth, and there's no danger of splintering. The fabric slips less on the unpolished linoleum than it did on the wood. *W. M. Scott, Middlesex, England*

Best-Kink Award for December

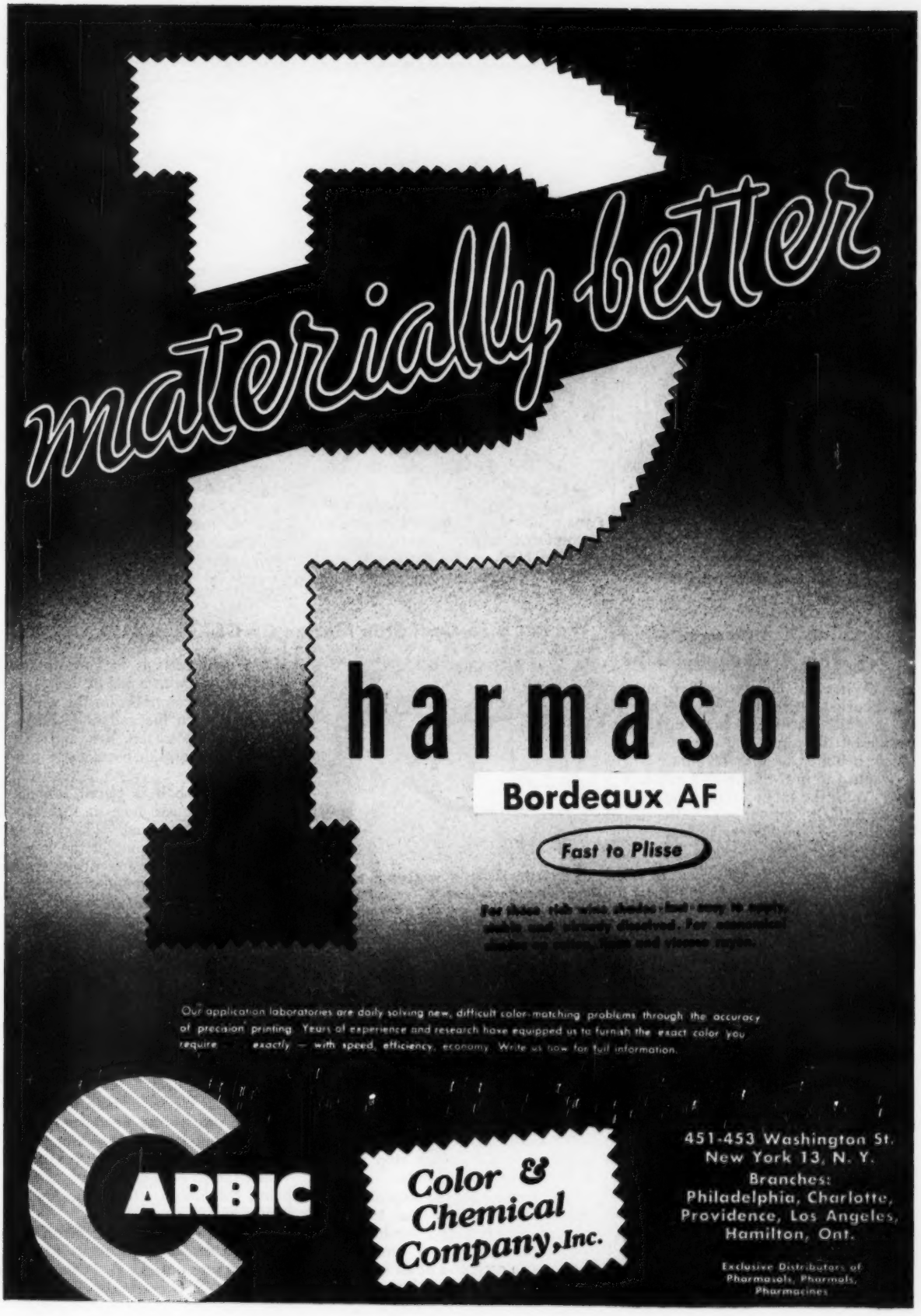
Each month TEXTILE WORLD awards $25 to the submitter of the Kink judged by a panel of over 200 practical mill men as the best for that particular month. A new batch of Kinks appears each month, and a new group of readers acts as judges each month.

If you are asked to judge one of these days, be sure to help select the best Kink by sending back your answer in time for final tabulation. Closing date for judging is the last day of the month in which the Kink appears.

The best Kink for December, according to TEXTILE WORLD reader-judges, was:

"Roll Picker's Shield Keeps Dirt Out of Yarn"

By J. B. BOYTER, Box 376, Dallas, N. C.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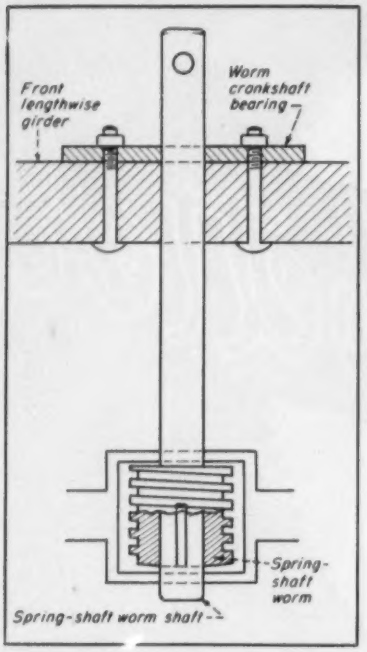
Doff Cloth on X-Model Looms With Less Effort



FEWER PARTS ARE NEEDED when this setup is used. Part costs are therefore lower.

The worm crank and the worm-crankshaft gear for the high-roll take-up on X-model looms cause a lot of trouble. The crank often slips from the gear and causes the cloth doffer to skin his knuckles. The gears, too, often break and must be replaced.

We have made a simplified and inexpensive crank that is giving good service.

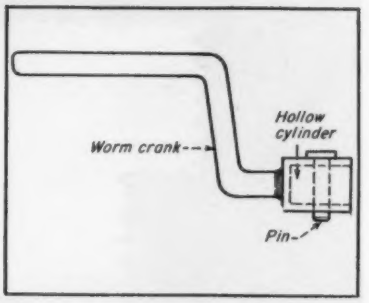
On the new setup, the original worm-crankshaft gear and the worm gear are discarded. Our mill machine shop makes a new crank and a spring-shaft worm shaft to replace the discarded parts.

The shaft is made from cold-rolled steel 10¼ in. long and has a keyway cut in one end to fasten it to the spring-shaft worm. A ⅜-in. hole is bored in the shaft 1¾ in. from the other end.

A crank is made, and a sleeve to fit over the shaft is welded to the end of the crank.

The parts that are to be eliminated are removed, and the new spring-shaft worm shaft is placed on the loom.

The cloth doffer keeps the crank and uses it on all looms to doff the cloth. He inserts a pin through a hole in the crank sleeve after he slips the sleeve over the shaft. The pin is a finger-tight fit in the shaft and will not drop out as the crank is turned.



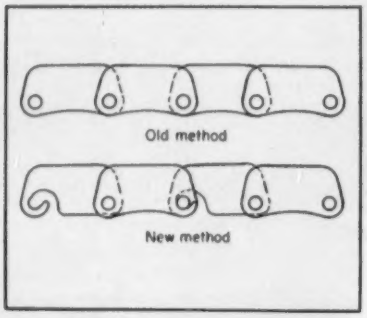
JUST DROP THE PIN through the crank sleeve and the shaft and you're ready to roll.

Since we have been using this new way to doff cloth, the cloth is doffed easily, quickly, and safely. We save on loom parts, too, because the new crank does not break the worm-crankshaft gear. *Charles D. Westbrook, Trion, Ga.*

Circular Knitters— Try This Detachable Link

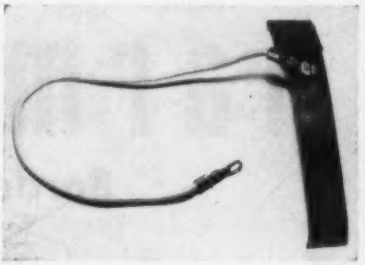
When we changed styles on our circular knitting machines, we had to stop the machine, remove the chain, file off the rivets, and remove or add the required number of links. Then we had to rivet the chain together.

With the aid of a stamp and die we were able to cut our links to the shape shown in the sketch and alter the length of the garment without any loss of production. This idea also saves the fixer time and economizes on rivets. *John Rapoya, Jr., Hope Valley, R. I.*



WHEN YOU CHANGE SIZES AND STYLES on a circular knitting machine, use this detachable-link arrangement and you won't have to lose production time.

We Put a 15-Cent Stop Motion On C&K Precision Let-Offs



THIS STOP MOTION requires a piece of wire, two wire connectors, two bolts and a washer, a binder spring, and a piece of paper. All can be bought for less than 15¢.

We have precision let-offs on S-looms and on C-looms. We're weaving heavy spun-rayon fabrics on most of these looms. Since the take-up gear often takes up faster than the let-off releases the warp near the end of the warp, the let-off is sometimes pulled against the stop-motion stand, and the housing is broken.

To eliminate let-off breakage, we made a simple electric stop motion that costs only a few cents.

The contact for the stop motion is made from a spring from the front of the drop-box end binder on S-looms (S104940A). A connector is fastened to each end of an 8-in. piece of regular 12-v. loom wiring, and one of the connectors is fastened to the binder spring with a ⅛x¾-in. bolt.

The other connector on the wire is forced between the end of (S99345-3A) inside contact bar and the (S99345-3B) outside contact-bar insulation.

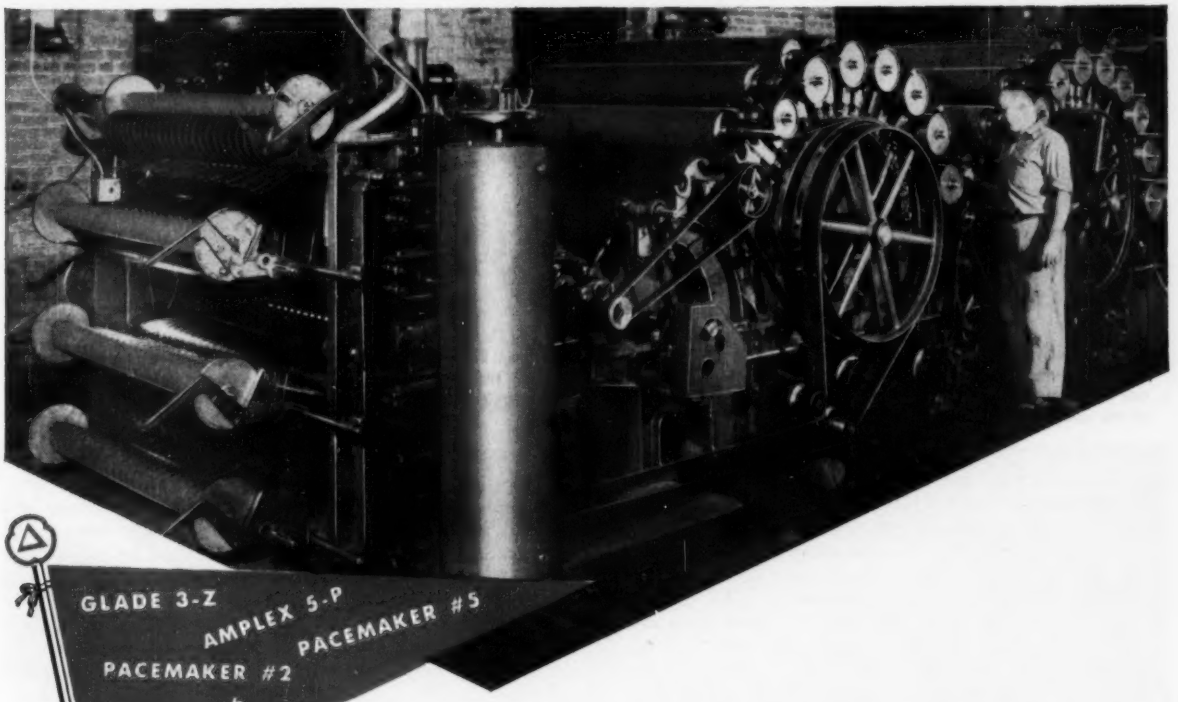
A ⅛x1-in. bolt is placed through the outside square hole in the stop-motion support stand. The bolt is inserted from the front of the loom. A 1¼x3-in. piece of heavy insulating paper is wrapped around the end of the binder spring opposite the wire connector. The paper and spring are placed flat against the support stand with the spring straight down, a ⅜-in. flat washer is added, and a nut is used to hold the binder spring to the stand.

The bottom end of spring is bent toward the back with a pair of pliers so that when the let-off strikes the spring, the spring can return to original position when released.

Now that we have these stop motions on our let-offs, we do not have to watch our low warps so closely to prevent the let-offs from breaking. When the let-off approaches a danger point, the housing strikes the binder spring, and the loom stops.

We then increase the stroke on the plunger lever and forget about it until the warp runs out. *D. B. Bedingfield, Greenville, S. C.*

COMPLETE JOB BY CITIES SERVICE LUBRICANTS... Glade 3-Z keeps leather on rolls soft and pliable. Amplex 5-P is used for oiling line shafting, Pacemaker #2 on spindle bearings, Optimus #6 in steam cylinders, Pacemaker #5 in steam engine crankcase.



CITIES SERVICE LUBRICANTS *keep 'em rolling at* CAPITOL CITY WOOLEN MILLS!

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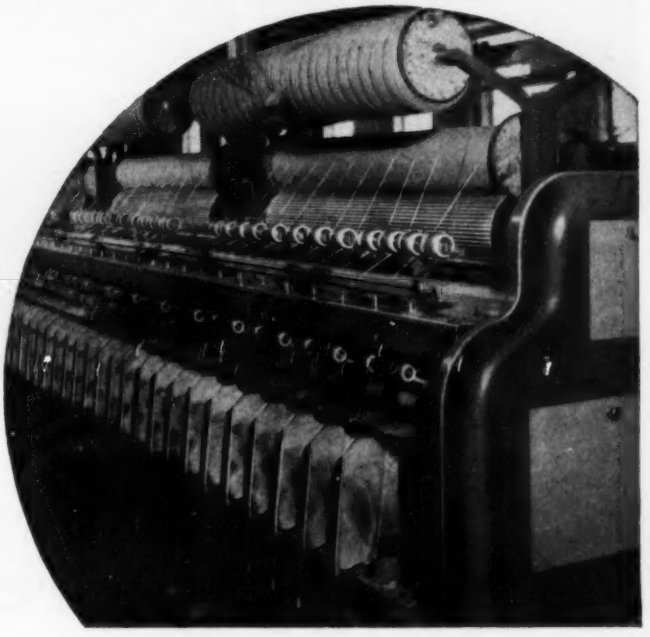
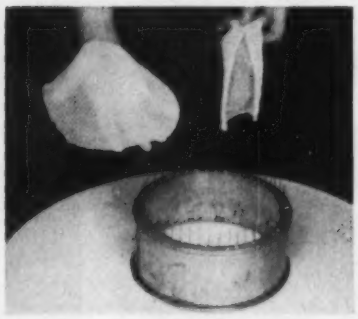
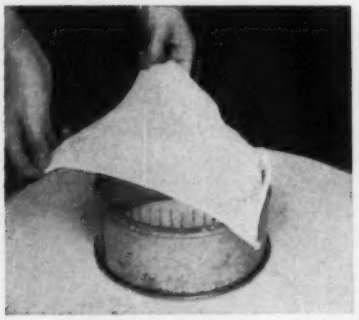


How We Set Our Own Small Tricot Samples



AFTER FINISHING (left) the sample is flat and the stitch formation and weave effects can be studied. Pin frame beneath is heart of the sample-setting system.



PIN THE SAMPLE on the frame. Be sure to maintain wales and courses in their proper relative position. Overstretching the fabric here may cause curling later.

EDGES ARE TRIMMED after pinning, and the sample is then ready to be set in the boiling pan. Water level should be 1 in. above the fabric level.

Tricot knitters are turning to the production of fancy fabrics to keep ahead of their competitors. These fabrics are often made from nylon, and due to the effect of loop distortion and the peculiar construction of tricot fabrics, it is difficult to forecast the final appearance of a new fabric or pattern. The design on point paper may look very impressive and well balanced; but after knitting and finishing, the results are likely to be disappointing.

A considerable difficulty in the designer's work is the delay involved in finishing the samples, and it is often some time before the pattern can be seen in its finished form. If he wants to knit the sample in a different denier, apply more tension to either guide bar, vary the number of courses per inch, or have it set to a different width, he may have to wait some time to see if his modification has improved the fabric.

A number of mills produce their samples on small machines with a needle bar only 12 to 24 in. wide. Finishing machines are not capable of accommodating such narrow fabrics.

To cut down the time between knitting a sample and seeing it in its finished state, and to set these small samples, I built a setting frame at a very low cost.

I used a bottomless baking tin for my frame, although any similar can would be suitable. The pins are thin 1-in. nails ground to a needle point and soldered into holes drilled into the lip of the tin, as shown in the first photograph.

The fabric is stretched onto the points, the edges are trimmed, and the tin is placed with the fabric face down into a boiling pan. Water is poured in to a level of 1 in. above the fabric. The entire unit is then boiled for 25 to 35 min.

The frame is then removed from the pan, excess water is shaken off, and the fabric is dried in a stream of hot air provided by a hair dryer or a small oven. Care must be taken not to overheat the fabric and cause it to tender and yellow.

The drying time depends upon the number of samples on the frame. I successfully set 16 samples in one batch; boiling took 35 min. and drying took 45 min. This length of time is usually sufficient to remove the size and kinks.

Dyeing of samples can easily be carried out by combining the processes of scouring, dyeing, and finishing in the same batch.

Experiments with other fibers, such as rayon and Dacron in various deniers, were satisfactory. The use of a pressure cooker reduced the time of boiling to 15 min. instead of half an hour or so and produced a fabric of superior handle. *A. Reisfeld, Nottingham, England.*

How I Use a Wrench To Remove Small Lathe Chucks

Unscrewing the chuck from a lathe spindle nose requires that the back plate be given a quick impact in order to loosen engagement with the nose thread. One method of doing this is to place a metal block on the rear way of the lathe bed and, with the back gear engaged, pull the lathe belt around in the reverse direction until one chuck jaw strikes the block. The impact loosens the thread.

This procedure is very awkward on small lathes because the belt is usually too short to give an adequate hand hold. On small lathes, back plate and spindle threads are not usually very tight and my method is much better.

With the lathe spindle locked against rotation, apply a large adjustable wrench to the width of one of the chuck jaws. A quick jerk on the extreme end of the wrench handle will loosen the chuck and free it from the spindle. *C. T. Bower, London, England*

LOCK THE LATHE SPINDLE and give the wrench a jerk to loosen the chuck.

How To Find Leaks In Your Air Lines

It's easy to check your air-distribution system for leaks, and the procedure will save money. Most small leaks are found around valve stems, hose connections, unions, drains, home-made blow guns, and lines that lead to inoperative tools.

Here are some ways to find the leaks:

Use a lighted candle and watch for flickers.

Brush a solution of soapy water around the suspected area and look for bubbles.

Put some essence of peppermint into the system and smell out the leaks.

Hold a toy whistle of the siren type over the air line and listen carefully.

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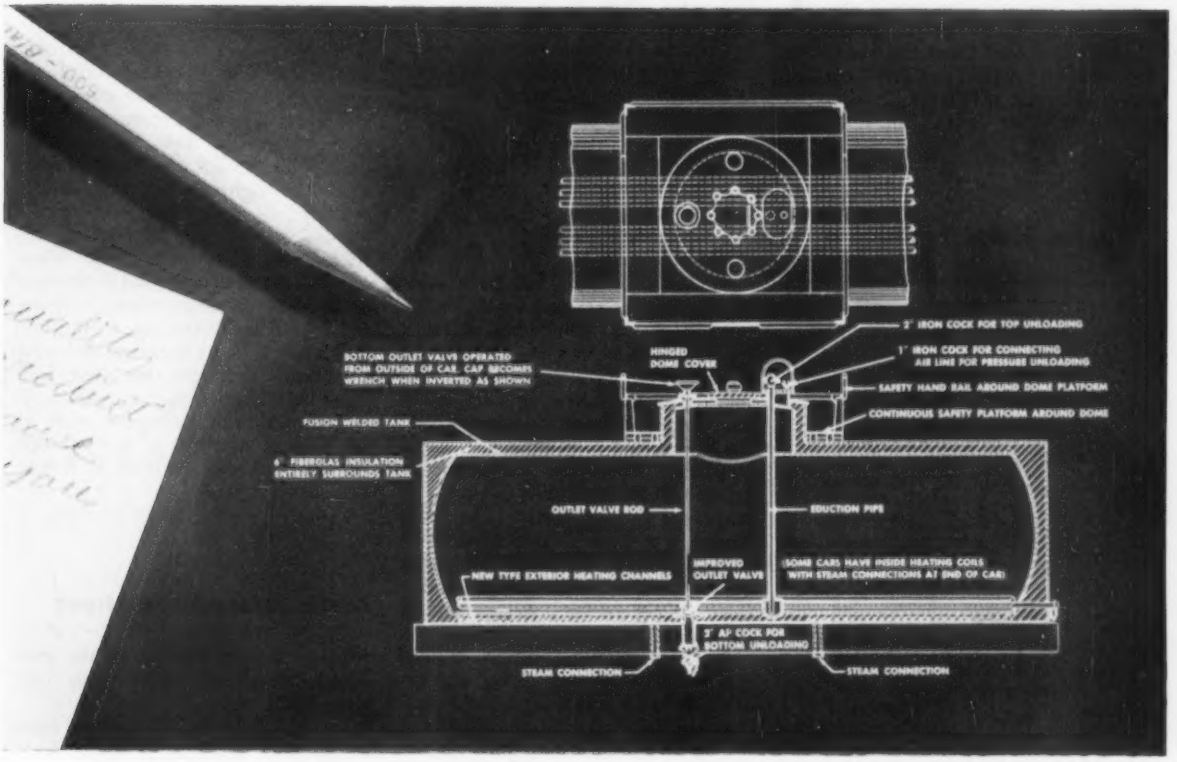
2" IRON COCK FOR TOP UNLOADING
1" IRON COCK FOR CONNECTING AIR LINE FOR PRESSURE UNLOADING
HINGED DOME COVER
BOTTOM OUTLET VALVE OPERATED FROM OUTSIDE OF CAR. CAP BECOMES WRENCH WHEN INVERTED AS SHOWN
SAFETY HAND RAIL AROUND DOME PLATFORM
CONTINUOUS SAFETY PLATFORM AROUND DOME
FUSION WELDED TANK
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3" AP COCK FOR BOTTOM UNLOADING
STEAM CONNECTION
STEAM CONNECTION

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When you order caustic soda solution from Dow, regardless of whether shipment is made from Dow's three large plants at Midland, Michigan, Freeport, Texas and Pittsburg, California or from terminals at Carteret, New Jersey; Charleston, South Carolina or Los Angeles, California, you can be certain of dependable delivery of high quality caustic. All tank cars are expertly maintained and thoroughly washed and inspected before every loading. Caustic soda 48-50% solution and 71-73% solution are delivered in 8,000 and 10,000 gallon tank cars.

The next time you buy caustic soda, whether it is solution, solid, flake or ground flake, buy from Dow. Write for Dow's CAUSTIC SODA HANDBOOK for complete unloading, handling and product information. Wherever you are, you're close to Dow caustic soda. THE DOW CHEMICAL COMPANY, Midland, Michigan.

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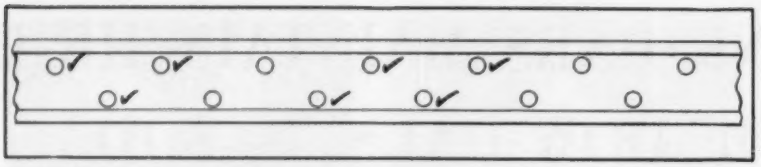
DOW

Auxiliary Plate Simplifies Building Pattern Chain



PUT A PEG at each check mark and lift off the plate. Wipe the crayon mark off the plate with your finger, and it's ready for another marking.

Pattern-chain building is a tedious job, particularly when fancy patterns have to be pegged.

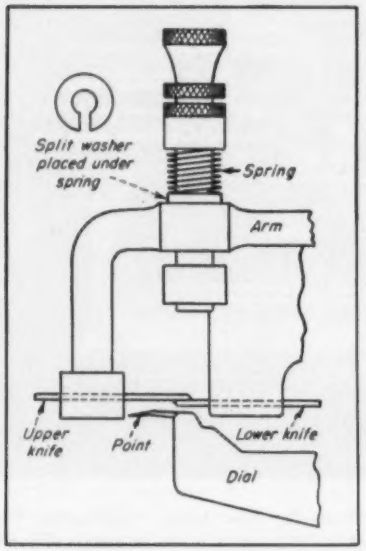
We use a plastic plate to make chain building easy. The plate, cut from a large sheet of $\frac{1}{16}$-in. stock, is heated, bent around the face of the chain bar and over the bevel edges, and cut flush with the back of the bar.

With the chain bar as a guide, the plastic is drilled from the back side of the bar. A drill and drill press are used to drill the holes. After the guide holes are drilled, the holes are reamed to a diameter $\frac{1}{16}$ in. greater than the holes in the chain bars.

The plate is placed next to the pattern-chain draft on design paper and is checked with a soft crayon at each hole where a peg is to be placed in the chain. Then the plate is placed over a bar in the pattern chain that is being built, and the chain is pegged. The plate can be lifted off the pegs easily.

Since we've been using this method, we have fewer chains pegged incorrectly, and our chain builder can build chains faster.

Washer Helps Produce a Neater Looping Job



INSERT CUTAWAY WASHER under spring to add tension to the upper knife and prevent frayed stitches along the looping line.

A constantly recurring source of trouble to the fixers in our sock-looping department was the failure of the looper knives to maintain a smooth cutting line in the second line of stitches above the points. This condition allowed too much runoff for the brush to remove and resulted in a rough, linty-appearing seam in the toes of the socks.

The knives, which had been properly ground on a grinder specially designed for the job, were carefully honed to remove any burrs caused by grinding and were correctly set and adjusted in the trimming attachment. The correct height of the looper knives was maintained to cut the first course of stitches above the course on the points and leave one-half course to be swept out by the brush. The knife tension was painstakingly adjusted to get satisfactory trimming; yet, a few hours after they were resharpened, the knives would be back at their annoying trick of ragged trimming.

A thorough investigation showed that the knife-tension spring was too weak on most trimming attachments. The weakness of the spring allowed the upper knife to rise slightly and result in a rather unsightly shearing action instead of a smooth cutting action.

A quick solution to the problem was found by the use of a washer with a $\frac{3}{8}$-in. hole, $\frac{7}{8}$-in. diameter, and $\frac{1}{16}$-in. thickness. The washer was slotted, as shown in the sketch, and then slipped under the spring and around the shaft. The increased spring tension gives us neat trimming, the operators have increased production, and much less of the fixer's time is required to keep the machines in operation.

[Editor's Note: This idea should prove particularly useful in looping socks made from nylon, Orlon, and dynel.]

How an Inside Slot Saved an Outside Man

In the assembly of asbestos-cement buildings or roofs it is common to use dome-head screws on the weather side. The inside end of the screw is fitted with a square nut and washer. Placing the bolts is ordinarily a two-man job.

With careful planning of the operations, one man can assemble the sheets of material in position, drill all necessary holes, and insert the screws. The nuts can be spun on the screw threads from the inside of the building, and it is only when the assembly is to be tightened that a second pair of hands is needed. Usually, one man keeps the screw from turning while the inside man tightens the nut with a wrench.

The helper, or outside man, can be eliminated this way:

After the nut has been spun onto the screw and tightened until the screw rotates, a shallow screwdriver slot is cut across the screw end. The lone worker can now insert a screw driver into the slot and hold the screw while he tightens the nut with a wrench.

This method can be used on any bolted assembly, particularly where sheet material of any kind is fastened to frames. In some cases, it is impossible to apply the saw to the bolt end when it is in its assembled position; and, therefore, the bolt ends must be slotted before assembly. It is better to slot the screw ends in position, if possible, to prevent burring the threads. *Clifford T. Bower, London, England*

More Safety Suggestions

- Never leave scrap iron on the work bench to fall off and possibly hurt your foot.
- If you make your own mops to clean machinery, be sure to make them small enough so that loose ends can't get caught in belts and pulleys.
- Take the time to pick up your trash and put it in a container.
- Always keep to the right when you approach an electric-eye door. Then you won't get hit in the face unexpectedly.
- When you check an air line for the humidity system, wipe up any water that comes out, or throw some sand on the floor at that point.
- Be sure that the drawing frame is stopped before you oil the head gear.
- Use the window latches. Keep props out of windows.

The Avondale Sun

If color

Is What You Want In Knitting Yarn

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No wonder so many leading knitting mills depend entirely on CROSS combed and double-carded dyed cotton knitting yarn. They are sure of CROSS colors . . . they are sure of CROSS quality.

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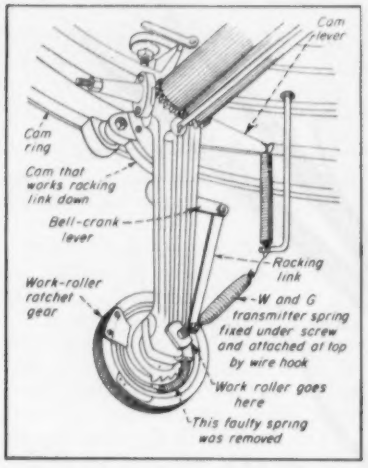
I. I. Davis
4801 Locust Street
Philadelphia, Pa.

Temporary Repair Made to Knitting Roll-Up Mechanism


Cam lever
Cam ring
Cam that works racking link down
Bell-crank lever
Racking link
Work-roller ratchet gear
W and G transmitter spring fixed under screw and attached at top by wire hook
Work roller goes here
This faulty spring was removed

INTERLOCK KNITTING MACHINE is temporarily kept in production by the use of a sewing-machine spring.

The internal racking-gear spring on one of our Mellor Bromley interlock knitting machines broke while we had no spare available.

To avoid taking the machine out of production until a replacement part was received from the builders, I fixed it up in 30 min. to do the job quite successfully.

I secured a Willcox & Gibbs flat-lock transmitter spring from the sewing department, and a length of strong wire.

The broken spring was removed. A hook 2 in. long was then made from the wire and attached to the cam-lever spring column. The transmitter spring was hooked to it and secured at the other end, underneath the screw head at the bottom end of the racking link.

The arrangement worked fine until the new spring arrived. *W.M. Scott, Middlesex, England*

Change Lamp Bulbs Without a Ladder

CARDBOARD BULB BOX on a pole can be used to change bulbs in ceiling fixtures.

Changing an electric light bulb in a ceiling socket usually requires a step-ladder.

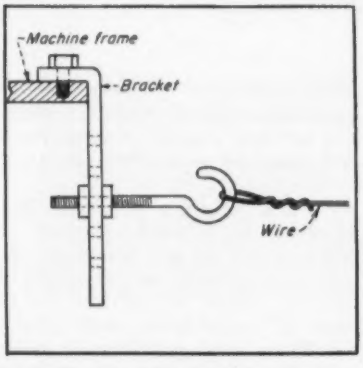
The ladder can be eliminated and the bulb-changing operations carried out from the floor if a bulb changer, similar to the one illustrated, is constructed. All you need is a pole of suitable length and the corrugated cardboard carton or sleeve in which new bulbs are packed. The carton forms a tapered chuck into which the bulb can be pressed and held tightly.

To remove the defective bulb, push the cardboard chuck up until it engages the bulb. Because the tapered chuck wedges the bulb, you can screw the bulb out of its socket by twisting the pole.

A new bulb can be placed in the ceiling socket in the same way. *Clifford T. Bower, London, England*

Reduce Broken Ends on High-Speed Tricot Machines

STEEL WIRE IS STRETCHED across the warp sheet to reduce flapping on high-speed tricot machines.



TIGHTNESS OF THE WIRE is controlled by the two nuts. Holes drilled at different levels in the bracket allow vertical adjustment.

Rapid fluctuations cause the warp sheet to flap during high-speed tricot knitting. An extra strain is imposed on the ends in addition to the usual knitting strains.

We reduced our end breakage as much as 100% by fitting a simple device to the machine frame.

Two right-angle brackets were made from mild steel and bolted to the machine frame, one on each side of the machine close to the tension rail. Each bracket carries a threaded hook. A smooth steel wire is stretched tight between the hooks so that it bears against the warp sheet of the front bar.

The hook is clamped to the bracket by two nuts so that the hook can be adjusted to keep the wire taut.

Several holes are drilled in the bracket at different levels so that the hook can be raised or lowered to give the best results. The correct position and the right amount of tension are found by trial and error.

We found that a strong twine coiled twice around the wire and fixed to the frame reduced the vibrations of the wire.

This device proved of great value when we knitted rayon jersey, especially where the flapping caused break-outs at the selvages. Shading that was caused by warp flapping getting out of hand was also eliminated. *A Reisfeld, Nottingham, England*

Wind on Cones To Reduce Reeling Cost

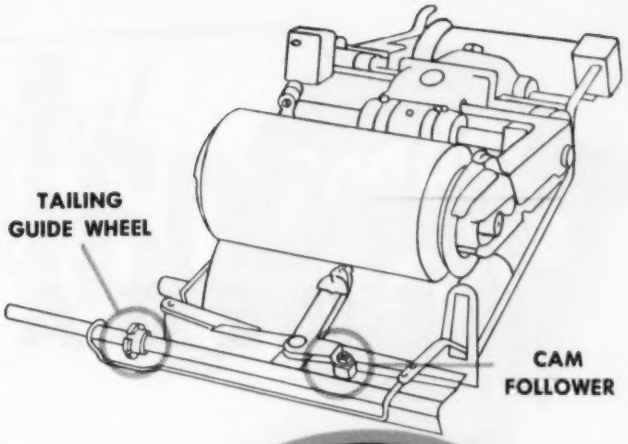
We used to reel from regular twister bobbins that hold about 9 oz. of ply yarn. Now we wind on cones that hold 2¼ lb., and our reeling costs have been greatly reduced.

Four full twister bobbins are wound on a cone. This extra operation costs money, but our saving in reeling has more than compensated for the additional process on high-speed winding equipment.

Creeling time for reeling is of course much less. And reeling labor cost per pound has been reduced, even though our operators' take-home pay is slightly higher than when they reeled from bobbins.

Parts molded of Du Pont NYLON on yarn uptwister

are strong, tough, wear-resistant...need no lubrication



The performance of these parts molded of Du Pont nylon plastic for the Unirail Uptwister is another example of why machinery manufacturers are turning to nylon parts for outstanding performance, low production and maintenance costs.

Du Pont nylon is resistant to both abrasion and impact. It is resilient . . . has low deformation under load . . . withstands continuous operation to 250°F. Nylon can be molded in thin sections and around inserts. And it has excellent bearing characteristics . . . requires little or no lubrication . . . greatly reduces danger of yarn contamination from oil or abraded particles.

Drafting parts, thread guides, verge plates, condensers and other textile machinery parts molded of Du Pont nylon have also proved efficient and economical in use.

Perhaps you can profit by using parts molded of Du Pont nylon. We'll gladly furnish the names of suppliers who will assist you in developing new parts or improving present ones. For further information, write:

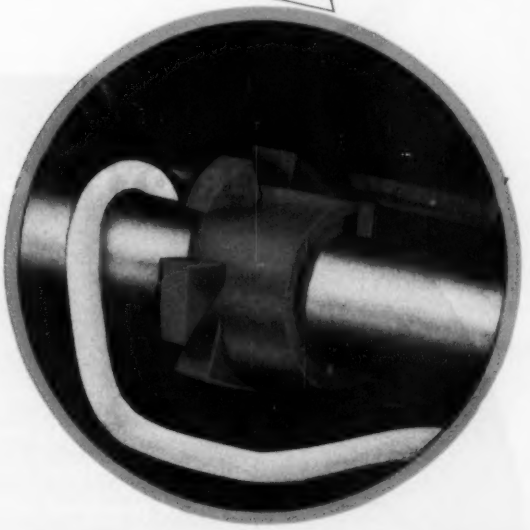
E. I. du Pont de Nemours & Co., (Inc.)
Polychemicals Department; District Offices:
350 Fifth Avenue, New York 1, New York
7 S. Dearborn Street, Chicago 3, Illinois
845 E. 60th Street, Los Angeles 1, California

Parts molded for Universal Winding Co., Providence, R. I., by Standard Plastics Co., Attleboro, Mass.

DU PONT
REG. U.S. PAT. OFF.

Better Things for Better Living
... through Chemistry

Polychemicals
DEPARTMENT
PLASTICS • CHEMICALS



TAILING GUIDE WHEEL is easily installed . . . has high wear resistance. Du Pont nylon is readily molded in this intricate shape. Its smooth surface eliminates snagging.

CAM FOLLOWER is economically molded to close tolerances with Du Pont nylon. Maintenance is minimized since this nylon part needs no lubrication.

Peregal

PEREGAL O

FOR DYEING AT ITS LEVEL BEST

vat colors

retards exhaust . . . promotes leveling . . . corrects uneven dyeing results . . . increases dyebath and pad liquor stability . . . reduces shade depth of overdyed cellulosic fibers.

direct colors

improves solidity of shade . . . retards exhaust . . . for partial stripping of overdyed material . . . for correcting shade of unevenly dyed cellulosic fibers.

basic colors

improves leveling and penetration . . . discourages bronziness . . . improves rubbing fastness . . . is a dispersant in color pasting.

PEREGAL O IS THE NUMBER ONE DYEING ASSISTANT FOR:
VAT COLORS
DIRECT COLORS
and
BASIC COLORS

gdc ANTARA gaf

ANTARA® CHEMICALS
(Division of General Dyestuff Corporation)
435 HUDSON STREET • NEW YORK 14, NEW YORK

BRANCHES: Boston · Providence · Philadelphia · Charlotte, N. C. · Chicago · Portland, Ore. · San Francisco
IN CANADA: Chemical Developments of Canada Limited, Montreal

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New Dyes & Chemicals
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Editorial Articles
and the Advertisements

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Dear Editor: **FEBRUARY, 1953**

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Outstanding TRADE LITERATURE *Free for the Asking*

NO REPEATS... Listed here for February are current bulletins reviewed by the editors of TEXTILE WORLD. To get the ones you need, circle the number on the Reader-Service card, as described on the preceding page.

TEXTILE MACHINERY

The Unirail uptwister is described in a bulletin prepared by Universal Winding Co. The uptwister comes with headless-package or bobbin take-up. With the headless package, the take-up has a built-in arbor. The bobbin-package machine has the finger or hanger take-up. The uptwister features the Uniflex spindle with a flexible lower blade, and a new swing unit with a special vibrator isolator. **(F-1)**

A card-flat grinding machine recommended for mills with 30 or more cards is the subject of a bulletin by Dronsfield Bros. Ltd. Flats are ground four at a time, and the machine stops automatically when grinding is completed. **(F-2)**

The Sant'Andrea system for long-staple 3- to 5-den. synthetic fibers is described in a bulletin of Sant'Andrea Novara. The system starts from a card or Pacific converter and includes two-delivery gill boxes before and after the comber and a four-delivery gill box after the comber and before the gill flyer. The ring spinning frame completes the system. **(F-3)**

Top-dyeing machines of stainless-steel construction are featured in a pamphlet by Riggs & Lombard. Both open and closed models are available. You need no special winding equipment, and the pressure is uniform on all spindles. **(F-4)**

The full line of Schweiter winding equipment is described in a catalog prepared by Schweiter Ltd. Pirn winders, cop winders, rewinders, cross winders, doublers, spindleless winders, and a ribbon warper are described. The machines include equipment for all kinds of yarn and special applications. **(F-5)**

A tandem super-jet system is the feature of a bulletin by Aldrich Machine Works. The system reduces the beaters and doubles the air cleaning. The opener delivers 3 to 5 blows per in., and the system has a normal rating of 88 lb. per hr. **(F-6)**

A single-cylinder waste machine is featured in a bulletin by Kirkman & Dixon Machinery Co. The waste can be fed by hand or by a hopper. The machines can be operated in tandem and are said to have ⅓ as many parts as a two-cylinder machine. **(F-7)**

The radial quiller recently introduced by Abbott Machine Co., Inc., is described in a bulletin by that company. It is designed for small mills and mills with diversified production. The creel holds 12 pairs of cones and revolves with the table. All six tension disks can be loaded. Production per operator is up to 2,000 bobbins per hr. **(F-8)**

A warp-drawing machine is described in a brochure prepared by Barber-Colman Co. The machine, Model SH, is available in 48, 66, and 86 in. entered reed widths and in 8, 16, 22, and 26 harnesses with six banks of drop wires and reeds. It draws warps from a flat sheet, split sheet, double beam, one-and-one lease, flat sheet and one-and-one lease, or two one-and-one leases. **(F-9)**

A piece-end sewing machine is described in a bulletin by Dinsmore Mfg. Co. The machine has an automatic motor-driven railway with or without a power return. The push-button control travels with the motor. The sewing stops automatically at the end of a seam. **(F-10)**

AUXILIARY EQUIPMENT

A tension regulator for applying card clothing to cotton or woolen cards is described in a bulletin of Howard Bros. Mfg. Co. The Tuffer regulator can be operated with the Tuffer motor drive or by hand. Woolen cards can be clothed without separating the cards. **(F-11)**

A tri-rail cleaner designed for the Gwaltney spinning frame is featured in a bulletin prepared by The American Monorail Co. The cleaner goes around 2-ft. curves with stable travel, and no shielding is necessary. A ceiling cleaner can be added to the tri-rail cleaner. An underframe cleaner is also described. **(F-12)**

Over 100 marking tools and devices are described in a bulletin prepared by M. E. Cunningham Co. Hand stamps, inspection-symbol stamps, marking machines, and steel type are shown in the bulletin. **(F-13)**

An infrared analyzer is described in a data sheet put out by Minneapolis-Honeywell Regulator Co. The instrument is designed for plant-steam service but has possibilities as a process-control medium. **(F-14)**

Instruments for controlling vat dyeing on the Marhen process are described in a

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Reader Service (Continued)

booklet by The Foxboro Co. The Redox recorder is said to insure direct, continuous measurement from the dyebath with no preamplification equipment. The Marhen process is explained, and applications of the control system are shown. **(F-15)**

A photoelectric scanning control for side positioning of webs and cloth movements is described in a booklet prepared by Westinghouse Electric Corp. The characteristics of three types of control are given, with speed of correction, rate of movement, web speed, and kind of material for each type. **(F-16)**

Have trouble with vibration? A vibration analyzer is described in a bulletin prepared by International Research and Development Corp. The instrument works from a filtering probe and vibration pickup and a stroboscopic flashlight-type lamp. You can check motors, V-belts, spindles, and almost everything with this instrument. **(F-17)**

A belt-matching machine that measures the length of V-belts under tension so that all the belts in a drive will be the same length is described in a bulletin by The Smith Power Transmission Co. Three models with capacities of 240-in. to 540-in. maximum length are described. **(F-18)**

Heat exchangers, agitators, blending equipment, and all sorts of kettles are described in a bulletin by Patterson-Kelley Co., Inc. **(F-19)**

Electric filters are explained and described in a booklet by Trion, Inc. The booklet includes an explanation of the filter tests and features of the Trion system, the power pack, water-wash system, and built-in dry filters. The equipment is available in a wide variety of packaged units. **(F-20)**

ENGINEERING AND MAINTENANCE

Ball and roller bearings and transmission units available from Tennessee Bearings, Inc. are described in a bulletin by that company. Bearings made by nine of the leading bearing manufacturers are cataloged. Also, specialties such as end bells for motors, lockwashers, and grease seals are described. **(F-21)**

A loom motor, packaged-card drive, and starters are featured in a bulletin by Allis-Chalmers Mfg. Co. Other Allis-Chalmers products for textile mills are briefly described — dielectric heaters, metal detectors, transformers, rotary compressors, steam turbines, and water conditioners. **(F-22)**

An interchangeable-size table for bearings has been made available by Wel-Met Co. The folder lists 133 MPA standard sizes with their dimensions and shows the interchangeable numbers of five leading bearing makes, plus the Wel-Met bearings. The folder is punched for insertion into your bearing catalog. **(F-23)**

Lapidolith, a liquid concrete hardener, is described in a bulletin from L. Sonneborn Sons, Inc. The substance reduces the porosity of concrete and is said to protect the floor against oils and chemicals. **(F-24)**

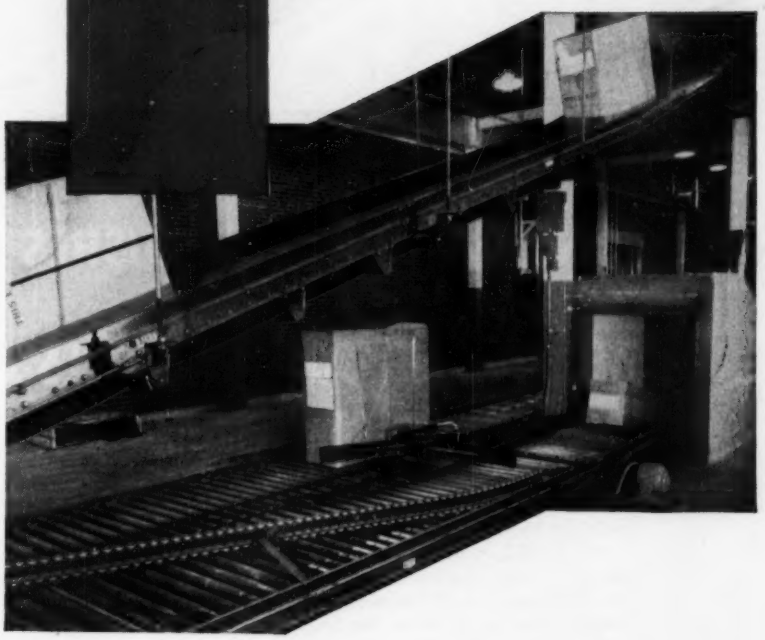
An automatic pallet loader is described in a bulletin from Lamson Corp. The loader takes a carton or a box right off the conveyor and stacks it on a pallet in a variety of patterns. You might want to look it over. **(F-25)**

Industrial hose offered by The Thermoid Co. have been reduced from 18 to 5 types. These five types are described in a bulletin by that company. The hose include lines for air, water, and steam. **(F-26)**

Multimotor slasher drives are featured in a bulletin from Westinghouse Electric Corp. The drives are in use with both hot-air and cylinder slashers on cottons, worsteds, and synthetics. The package drive is mounted in a single cabinet. **(F-27)**

Unit heaters of the horizontal- or

Put those Heavy Packages on ALVEY CONVEYORS



Why pay the high price of "manhandling"?

Strong, smooth-flowing arteries of Alvey conveyors can carry packages effortlessly and economically, throughout your entire mill. Alvey's "know-how" and wide experience in textile mill conveyor engineering is at your service—whatever your package handling problems.

It won't cost you a cent to have an Alvey engineer visit your mill and make money-saving suggestions. Phone or write us—we'll be glad to arrange it.

BRANCHES IN ALL PRINCIPAL CITIES

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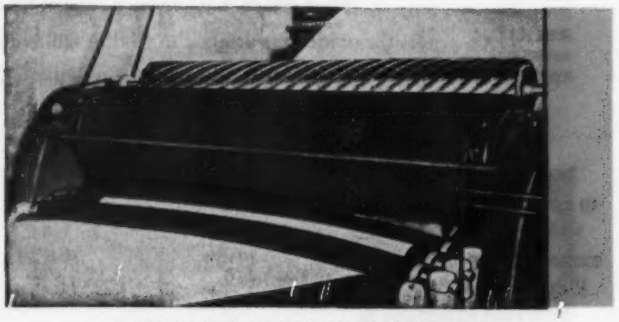
HERE'S WHY
JENKINS' METLKOR® BRUSHES
are on
JAMES HUNTER SQUEEZE ROLLS

James Hunter Machine Co., North Adams, Mass., wanted a brush to stand up when removing acidified flock from their Carbonizer Squeeze Rolls. Jenkins' engineers designed a METLKOR brush with exposed metal parts of stainless steel and bristle of acid-resistant Nylon.

Mr. Frank B. Morrill, Chief Engineer, James Hunter Machine Co., says: *". . . we have been using Jenkins' brushes for flock removal on our Squeeze Rolls for about three years . . . They do a much better cleaning job than the brush previously used, and stand up several times longer . . ."*

This top textile machinery manufacturer has time-tested and proven the efficiency of patented Jenkins' METLKOR—the cylinder brush that lasts *many times longer* and *can be rebristled!* It can cut *your* brush replacement costs and do a better job, too.

If you have any standard or special brush problem, call or write: M. W. Jenkins' Sons Inc., Cedar Grove, Essex County, New Jersey.



A JAMES HUNTER CARBONIZER SQUEEZE ROLL
WITH A JENKINS' METLKOR NYLON BRUSH

M. W. JENKINS' SONS, INC.

Three-Quarters' Century of Pioneering Brushes for Industry

Cedar Grove, Essex County, New Jersey

Telephone VERONA 8-5327

Reader Service (Continued)

vertical-fan type are described in a booklet by American Air Filter Co. The booklet includes graphs and charts of steam capacities, water-pressure loss, selection, and applications. **(F-28)**

Revolving joints are described in a bulletin by Rotherm Engineering Co., Inc. Several types are described—one comes in sizes from ½ to 5 in., handles 250 lb. of steam pressure, has low turning torque, and requires no bearings or lubrication. **(F-29)**

Textiles ride on casters, and they are described in a bulletin from Wilkin & Matthews. The bulletin says these casters give better rolling action, more tread, don't clog up, and don't track up the floor. **(F-30)**

The aisle space necessary to maneuver the various models of rider-type electric trucks put out by Raymond Corp. has been tabulated on a round dialing chart. You match two arrows for the width and length of the load, and a window shows the aisle space necessary for the various models. **(F-31)**

SUPPLIES & CHEMICALS

Fork, ram, crane, and platform trucks are featured in a booklet from The Baker-Raulang Co. One section tells you how to select the right truck for the right job. **(F-32)**

Supply-handling equipment is described in a bulletin from Sunray Co. Bobbin-dumping trucks, loom-beam dollies, cloth trucks, and steel cabinets are described. **(F-33)**

"How To Get the Best Service Out of Your Card Clothing" is the title of a booklet by Charlotte Mfg. Co. The booklet discusses storage, preparation, application, grinding, and stripping and describes the company's services. **(F-34)**

Tape samples are included in a pamphlet by Hope Webbing Co. Three samples from fine to heavy, designed for small-package to heavy-package spinning and twisting, demonstrate the product better than lengthy description. **(F-35)**

A bobbin that is said not to require dynamic balancing is described in a bulletin from Lestershire Spool & Mfg. Co. The company offers to send you a sample bobbin for trial. The bobbin has an aluminum center tube and beveled bushing. **(F-36)**

Sliver guides are featured in a bulletin by Gladwin Plastics, Inc. The parts in contact with the sliver are one-piece plastic. You can test the guides without obligation in your mill. **(F-37)**

Change instantly from cones to tubes, a bulletin from Edward J. McBride Co., Inc. tells you. A universal cone holder with no setscrews does the trick. Also described in the bulletin are creels and loom beams. **(F-38)**

Bahan-built loom parts are described in a booklet by Bahan Textile Machinery Co., Inc. Besides parts, the booklet describes assemblies and motions, rebuilt looms, and the Bahan loom. **(F-39)**

Peracetic-acid bleaching of acetate and nylon is the subject of a booklet by Buffalo Electro-Chemical Co. The booklet contains a section of general recommendations and typical bleaching procedures used by mills. **(F-40)**

Heliogen colors are discussed in a booklet by General Dyestuff Corp. The properties and uses of the colors are given. The colors are used in textile printing. **(F-41)**

GENERAL

A "Manual of Laboratory Safety" has been made available by Fisher Scientific Co. The booklet contains chapters on accident prevention, first aid, fire prevention, and safety equipment. **(F-42)**

The IBM electronic calculating punch is described in a booklet prepared by International Business Machines Corp. The

BRINTON

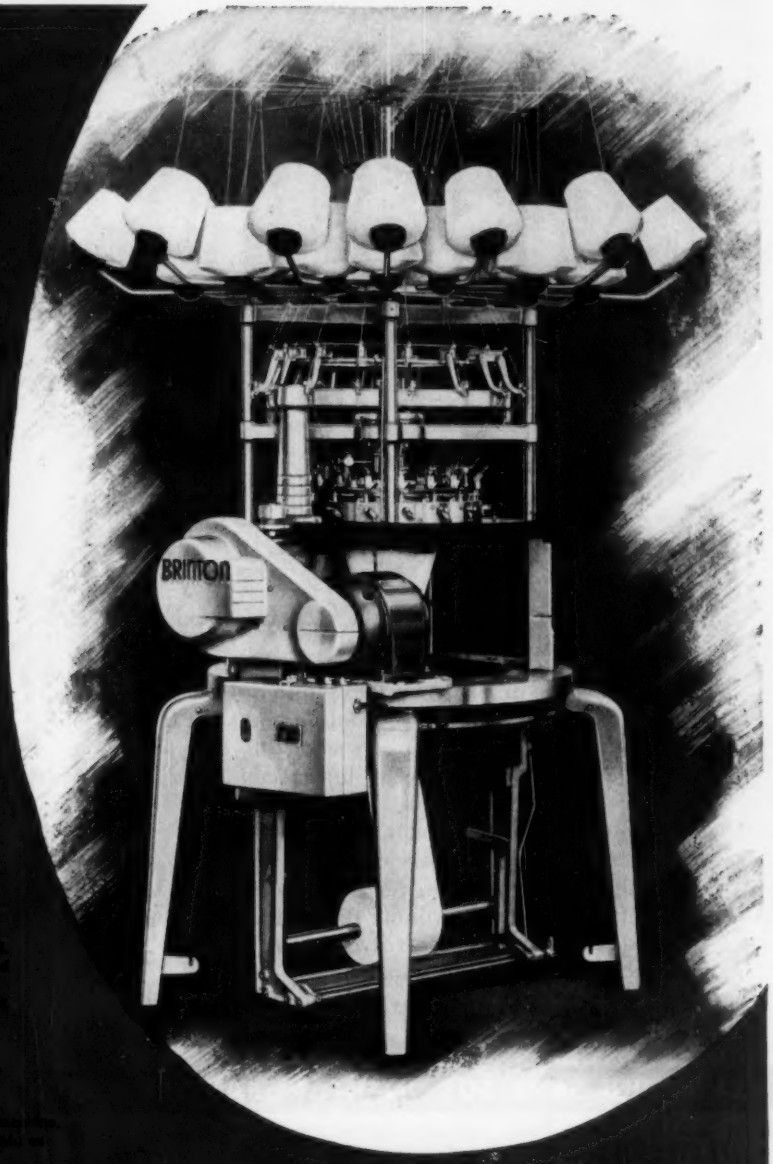
MODEL MULTIPLEX

STYLE RM-DE

Knitting Machine of the Mid-Century

BRINTON'S NEW DESIGN FOR BETTER PRODUCTION

Engineered features of Model Multiplex are:



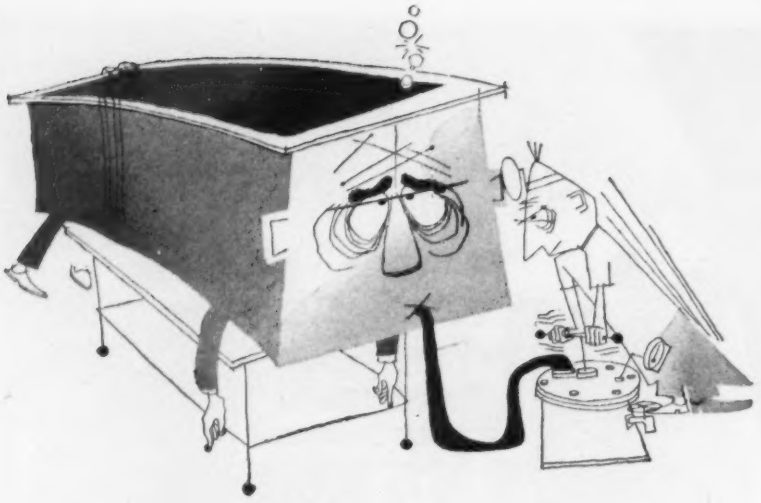
In this, the leading or pre-eminent century, the most advanced engineering techniques are combined with the ideas of the most advanced industrial designers. Here is a completely new conception of the large diameter knitting machine.

Brinton resources, craftsmanship and six decades of know-how worked to produce a machine that gives higher production and better quality at lower cost. Model MULTIPLEX is an engineering achievement, with many features, greater advantages and improved performance.

BRINTON

CIRCULAR KNITTING MACHINES

BRINTON BROS. S. W. ST., PHILA. 24, PA., U. S. A.



has **coil-itis*** cramped your production flow?

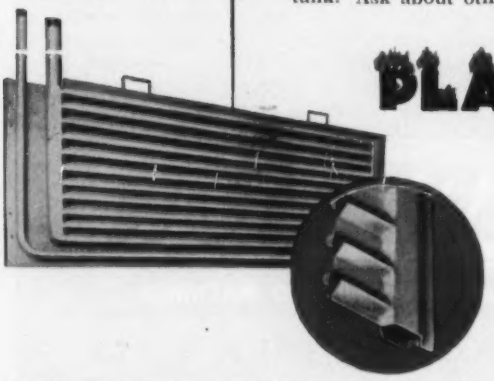
It's a waste of costly time to pump out the solution every time your process heating and cooling tanks get indigestion due to pipe coil troubles. You can save this cost and eliminate production bottlenecks by replacing the pipe coils with Platecoils. Platecoils can be removed and replaced **without dumping the solution**. They simplify maintenance and save hours of downtime. They heat or cool 50% faster and take 50% less space in the tank. As revolutionary as the new wonder drugs, Platecoils cure production troubles involving heat transfer . . . and give profits a shot in the arm.

Write for bulletin P32 today!

PLATECOILS SAVE 50% IN HEAT TRANSFER COSTS

PLATECOILS TRIPLE PRODUCTION

At Continental Motors Corp., 3 crankcase sections can be cleaned at one time when Platecoils are used while only one crank case can be cleaned with pipecoils in the tank. Ask about other case histories.



PLATECOIL

REPLACES PIPE COILS

*

Coil-itis — Diagnosed as tank heating and cooling problems. **Platecoils** — the prescription for solving pipe coil problems.

PLATECOIL DIVISION, KOLD-HOLD MANUFACTURING CO., LANSING 4, MICHIGAN

Reader Service (Continued)

machine operates at a 6,000-cards-an-hr. speed and performs up to 60 operations on a single card. **(F-43)**

A machine that copies any office form in seconds is the feature of a booklet by Charles Bruning Co., Inc. The principle of operation is the same as the Copyflex process for copying engineering drawings. The machine can be used for management, manufacturing, and personnel records. **(F-44)**

The three grades of maple flooring are shown by photographs in a folder prepared by Maple Flooring Manufacturers Assn. If you want to investigate maple flooring, you'd better take a look at these grades. **(F-45)**

"How Rayon Is Made" is the title of a booklet by American Viscose Corp. The process is explained in 37 numbered paragraphs with a picture to illustrate. **(F-46)**

Purchasing procedures are featured in a booklet from Remington Rand Inc. The booklet features the Kardex system applied to purchasing new records. **(F-47)**

Safety at Du Pont is featured in a booklet by E. I. du Pont de Nemours & Co., Inc. The booklet is filled with safety ideas, philosophy, and the right way to do things. The two-page spread on "The Foreman's Role" is worth your interest. **(F-48)**

A 13-column, multiple-total, adding-subtracting machine is the feature of a bulletin by Burroughs. The features of the machine are easy register selection and a split keyboard. **(F-49)**

A payroll and cost system is featured in a bulletin by The National Cash Register Co. The four features are visibility of posting line, removable control bars, standard keyboard, and electrified typewriter. **(F-50)**

World Textile Picture

(*Continued from page* 106)

The U. S. estimated an export decrease in cotton textiles in 1953.

Where is all that extra yardage going to be sold? Nobody knows. There are enough ill-clothed people in the world to use the cloth, but no way has been worked out to get it to them at a price both they and the manufacturers can afford.

Besides, each of the poorer countries wants to develop manufacturing facilities as soon as possible.

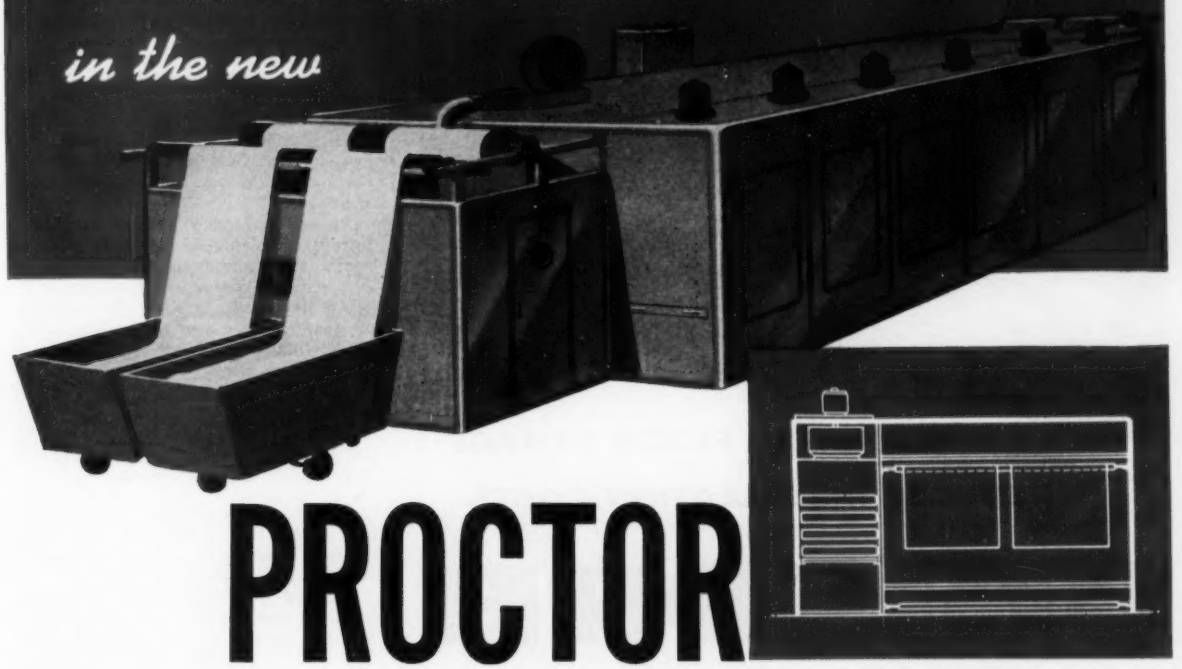
OVERSEAS REPORTS. Throughout the year, overseas news reports of textile interest come across the desks of TW editors. Listed below are the highlights of some of the more recent items of general interest:

Argentina. Wool trading has been going ahead satisfactorily since modifications in exchange and export regulations were made last July.

Australia. Burlington Mills (Australia) Ltd. reported an almost complete collapse of the market during the fall (spring in Australia), though recent import limitations and duties have started to revive the market.

Spinning of acetate yarns at Courtaulds

The greatest drying uniformity ever offered in any loop dryer is guaranteed in the new



PROCTOR LOOP DRYER-CURER

By utilizing an entirely new concept of air movement, the new Proctor Loop Dryer-Curer guarantees you the greatest drying uniformity ever offered in this type of equipment.

It further results in maximum production with minimum power requirements.

In addition to more uniform drying for a wide variety of fabrics—the new design provides these advantages:

1. Cleaning time is reduced to an absolute minimum through the proper application of lint screens—and locating heating coils in a readily accessible position.
2. Expensive maintenance of couplings and belts is completely eliminated through the use of direct motor driven fans.
3. Greater cleanliness is promoted inside the dryer through the use of an entirely new type of panel construction. This construction eliminates unnecessary structural members inside the dryer — and results in an exterior that is smooth and sleek in appearance.

The design of the new Proctor Loop Dryer-Curer has been standardized for shorter delivery. Where necessary the standard design is adapted to meet individual plant requirements.

Use the coupon below for more information.

Please let us have information on
the NEW PROCTOR LOOP DRYER-CURER

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Company_____

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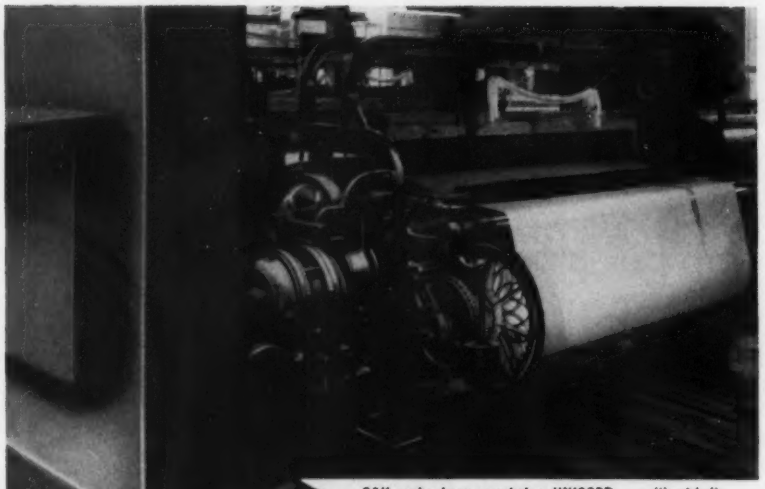

C&K woolen loom mounted on UNISORB . . . without bolts or lag screws, without floor damage.

MILL AFTER
MILL AFTER MILL
ELIMINATES FLOOR DAMAGE
REDUCES INSTALLATION COSTS
WITH

UNISORB®
MOUNTINGS

As one mill man said: "It's easy to reposition machines mounted on UNISORB. And it saves the floors. We sometimes move 100 or more looms at a time."

You use UNISORB without bolts or lag screws, without drilling floors. You simply cement the pad to the floor and the machine. Let it set overnight, and you've eliminated 60% to 85% of the noise and vibration transmitted by machines. Or, for machines that do not require shimming, you can use UNISORB precoated with adhesive.

There's a grade of UNISORB for practically every textile machine. Return the coupon for complete information about this economical way to anchor your machines.

Look for the red center and UNISORB brand mark

The FELTERS Company
234 SOUTH STREET, BOSTON 11, MASS.

Offices: New York, Philadelphia, Chicago, Detroit, St. Louis
Sales Representative: San Francisco
Mills: Johnson City, New York; Millbury, Mass.; Jackson, Mich.; New York City

RETURN COUPON NOW! for your copy of "Why It Pays to Mount Your Textile Machines on UNISORB". No obligation.

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Address .....
City ..... Zone ..... State .....
Return to: The Felters Co., 234 South St., Boston

(Australia) Ltd. is expected to begin before the end of 1953.

A plant costing one-half million Australian pounds for dyeing and finishing rayon yarns and fabrics is planned under a 30%-capital-transfer agreement between Bradford (England) Dyer's Assn. and the Australian textile firm of Davies, Coop & Co., Ltd.

Brazil. A new plant with a planned production of 40,000 tons of textile cellulose is planned for Sao Paulo and will be operated by an affiliate of Snia Viscosa in Italy.

Britain. Buying in wool textiles is the best since 1951.

Heavy taxation makes it difficult for Textile Machine Makers Ltd. to modernize its production lines more rapidly and thus get new machinery to sterling-country mills at low cost.

Appeals for funds to support the Shirley Institute through 1953 have been made to textile trade associations.

In cotton spinning, the total output of cotton singles yarn is about three-quarters of what it was a year ago, while rayon-staple spinning easily exceeds last year.

In cotton weaving, the use of spun rayon, rayon filament, nylon, and Terylene is increasing rapidly.

A team left for Africa at year's end to investigate potential market demand for British cotton and rayon textiles.

Canada. Cotton-textile manufacturers have suffered from a year-and-a-half textile recession because of increasing imports from the U. S., Britain, and Japan.

Canadian worsted manufacturers, paying nearly 2½ times the British wages and protected by an average barrier of only 13% import duty, get only 41% of Canadian business. But Canadian mills cover about 70% of the market for other types of woolen fabrics, where the labor cost is appreciably nearer the British cost.

Egypt. The minister of supply of the Naguib regime has put a limit on the profits to be obtained from both locally made and imported cotton textiles—not more than 3% of the cost can go to wholesalers, and 10% is the limit for retail markup.

Modern American rayon-manufacturing equipment has been purchased from Oscar Kohorn in New York by Société Misr pour la Rayonne.

France. Many French mills are putting into effect some of the new techniques observed in U. S. mills during the ECA-sponsored team visits from Europe in 1951.

Germany. The German textile-modernization problem revolves around obtaining money for new machinery. A fully automatic loom costs about 4,000 marks, landed. West Germany encourages plant investment by permitting an annual tax deduction of 15%, as against the usual U. S. 6% for amortization. Labor costs average about 5% of the textile sales dollar.

Guatemala. Employees of Guatemalan textile mills now receive a minimum of

NON-FLUID OIL

TRADE MARK REGISTERED

Stops Black Yarn

Unlike ordinary oil, NON-FLUID OIL does not creep from roll necks to spread out over roll covers and aprons. Blackened yarn is eliminated and roll covers and aprons last much longer because oil rot is prevented.

Seven out of 10 mills get increased production by using NON-FLUID OIL. They have assurance of trouble-free lubrication and a reduction of lubricant and application costs because NON-FLUID OIL outlasts ordinary oil 3 to 5 times.

Why not obtain these benefits for your mill? Let us send you a generous sample for your own test to prove these claims. No obligation of course. Write for Bulletin T-13 and free testing sample of NON-FLUID OIL.

NEW YORK & NEW JERSEY LUBRICANT CO.

292 MADISON AVE., NEW YORK 17, N. Y. • WORKS: NEWARK, N. J.

SOUTHERN DISTRICT MANAGER: Lewis W. Thomason, Jr., Charlotte, N. C.

WAREHOUSES: Atlanta, Ga.—Birmingham, Ala.—Charlotte, N. C.—Chicago, Ill.—Columbus, Ga.—Detroit, Mich.—Greensboro, N. C.—Greenville, S. C.—Providence, R. I.—St. Louis, Mo.

NON-FLUID OIL is not the name of a general class of lubricants, but is a specific product of our manufacture.

If this Housing ever Breaks or Distorts we will replace it Free
HEAVY DUTY
RIDGID
"RIDGID" means most service for your money!

Only Genuine

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PIPE WRENCHES

Guarantee you against wrench housing trouble and expense

Look for the wrench with that guarantee label to make sure you get the extra-easy work and extra durability that have made RIDGID the world's most popular wrench.

Only RIDGID assures you a hookjaw that always rides freely in the housing; adjusting nut always spins easily to pipe size. Replaceable alloy jaws won't slip or lock on pipe. Handy pipe scale on hookjaw. Safe stout comfort-grip I-beam handle.

Save work and money—buy genuine RIDGIDs at your Supply House.

THE RIDGE TOOL COMPANY, ELYRIA, OHIO, U.S.A.

RIDGID

Work-Saver Pipe Tools

$1.25 (U. S.) per day, as against the former 50¢ to $1.

The local textile industry recently received a boost as a result of import duties put on foreign textiles this year.

For the first time in many years, the 1952 cotton crop equaled mill demands and left a little for export.

India. What India needs most is capital goods to expand and improve its textile industry.

The jute crop was large in 1952, and production facilities are said to be excellent.

Argentina recently contracted for 140-million yd. of burlap over a 9-mo. period.

National Machinery Mfrs. Ltd., located 20 mi. south of Bombay, is now supplying about half the ring frames needed in the country and is producing at a rate of 10,000 spindles per month.

Atul Products Ltd., technically aided by American Cyanamid Co., went into production last spring as India's first dyestuffs plant, with a 4,000,000-lb. capacity for azo and sulfur dyes.

Italy. The first cotton spinning mill in Sicily, partly financed by ECA-counterpart funds, is now in operation near Palermo. Costing close to the equivalent of $3-million, Cotonificio Siciliano with 30,000 spindles is expected to produce 2¼-million lb. of yarn annually.

Japan. Operating cotton spindles were given toward the end of 1952 as just under 7,000,000, over-all spindleage as 7,460,000, and operating cotton looms about 70,000.

Demand for raw silk has been increasing since early 1952. In the first 9 mo. of the year, domestic weavers took almost 100,000 more bales than in 1951.

Cotton-cloth exports came to less than 800-million yd. in 1952, 25% below 1951. Exports to Pakistan fell because of a delay in Pakistan in issuing import licenses. Other good customers are Central America, South America, Iran, and England.

Japan hopes to export 1,200-million yd. of cotton cloth by the 1957-58 fiscal year.

Spinning-frame and loom manufacturers are affected by a textile slump in Japan. They are reported "dumping" their production in export business by selling machinery up to 15% under official floor prices. Many textile-machinery manufacturers are taking on the production of armament and the repairing of rolling stock and tractors for the Japan Procurement Agency.

Building of plants to produce saran in collaboration with Dow Chemical Co. is to start shortly.

Joseph Bancroft & Sons is to receive $252,000 annually from three Japanese firms for use of the company's Everglaze finish. The agreement runs for 10 yr.

Netherlands. Textile Machine Works is erecting a 800,000-guilder machinery plant at Almelo to produce for European customers of TMW.

Norway. About 17% of U. S. rayon-staple imports come from this country, according to statistics for the first half of 1952.

A plant for the production of viscose

TEXTILE BANKING COMPANY

Inc.

Factoring Service

Puts your sales on a cash basis
Strengthens your cash position
Relieves you of credit losses

55 MADISON AVENUE • NEW YORK

The manufacturer likes this box—
it's easy to pack; it protects the product.
The retailer likes this box—
it displays and sells the product.
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it contains product-use instructions;
it is handy for storage.

Get the facts on Handsomely-Designed "tell and sell" packages—send for "Pack to Attract."
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17 MILLS AND FACTORIES • 40 SALES OFFICES

Our 65th Year

filament was started by A. S. Borregaard at year's end. Annual production of 6-million lb. is planned. Borregaard manufactures its own carbon bisulfide and caustic soda and is erecting a sulfuric-acid plant.

Pakistan. Machinery for two woolen mills has been imported and will be set up at Bannu and Harnai by the end of 1953. About 2-million lb. of woolen yarn is expected to be produced.

A 50,000-spindle cotton mill is planned at Khulna.

Increased sales of Indian burlap abroad is expected to give Pakistan's jute-and-cotton economy a shot in the arm.

Philippines. A $3,750,000 mill has been opened at Mandaluyong, near Manila, to produce about half the Philippine requirements of sugar bags and rice sacks from jute and locally grown kenaf. The 5,640-spindle, 300-loom plant was equipped by an Italian firm.

A cotton spinning mill near Narvacan, Ilocos Sur, is now producing yarn for home weaving and local fish-net manufacture.

South Africa. Over 30 textile plants have been established in South Africa since World War II. Previously, except for blankets and some hosiery, textiles were imported. Tariffs were low, and the use of relatively high cost white labor in South Africa made local competition difficult. By 1952, one-third of cotton-cloth requirements were produced locally.

South Africa has at least nine worsted mills. Worsted cloth woven locally produces about three-quarters of the Union's needs.

Rayon yarn is not produced in South Africa.

South Africa has one rayon-weaving plant, one nylon full-fashioned-hosiery plant, one carpet mill, and four felt manufacturers.

Yugoslavia. With the formal opening of a new spinning mill at Pristina, Yugoslavia no longer needs to import cotton yarn. The mill is set up to use 6-million lb. of raw cotton annually. Three other new spinning mills are located at Sinj, Mostar, and Stip.

Slasher Controls

(*Continued from page 130*)

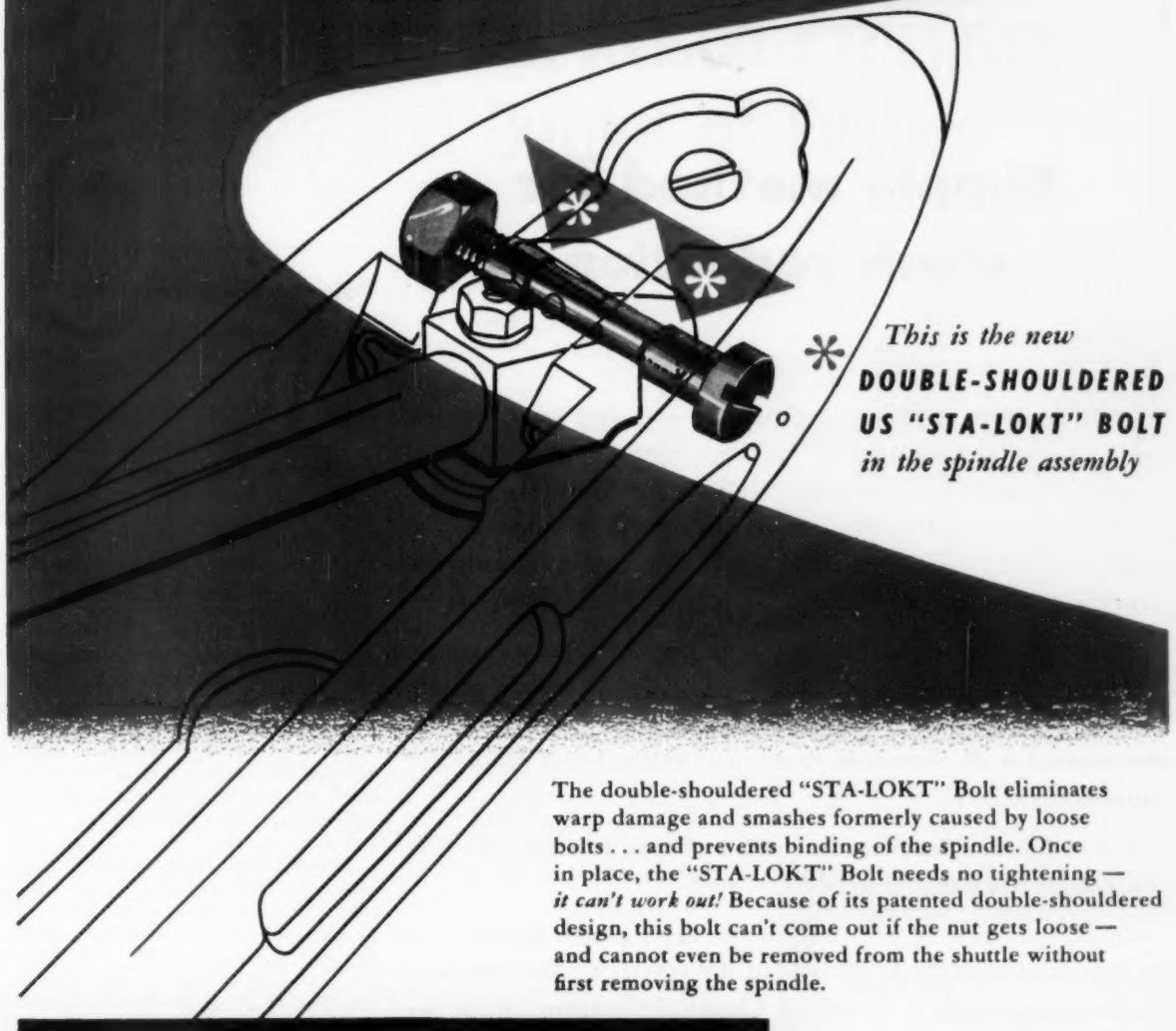
light would go on to indicate an open valve in the size supply line. Then after the time required for the cold size to be transferred from the size box to the loom beam, the moisture content would begin to pick up and the control point on the Moist-O-Graph would be overshot. The regulatory action would swing the system back to normal, but the action didn't end there.

Since every valve was open to overcome the wet yarn condition, the cycle swung to the opposite direction—overdrying.

As soon as the cycling started to

It's US patented

so no other shuttle has it!



This is the new
DOUBLE-SHOULDERED
US "STA-LOKT" BOLT
in the spindle assembly

The double-shouldered "STA-LOKT" Bolt eliminates warp damage and smashes formerly caused by loose bolts . . . and prevents binding of the spindle. Once in place, the "STA-LOKT" Bolt needs no tightening — *it can't work out!* Because of its patented double-shouldered design, this bolt can't come out if the nut gets loose — and cannot even be removed from the shuttle without first removing the spindle.

U S BOBBIN & SHUTTLE CO.

Can be used on any spindle assembly featuring the R-B head type spindle.

Manufacturing Plants
LAWRENCE, MASS. GREENVILLE, S. C.

General Sales Office LAWRENCE, MASS.

Southern Division Headquarters So. Carolina National Bank Bldg., GREENVILLE, S. C.
CHARLOTTE, N. C. JOHNSON CITY, TENN. FORT MILL, S. C. LaGRANGE, GA.
PHILADELPHIA, PA. PROVIDENCE, R. I. MINNEAPOLIS, MINN.
DALLAS: O. T. Daniel, Textile Supply Co. LOS ANGELES: E. G. Paules, 1762 W. Vernon Ave.
CANADA: W. J. Westaway, Montreal, Que., Hamilton, Ont.

B. F. Goodrich Chemical Company

Textile Highlights

FOR FEBRUARY

Simple method for crock reduction

THE problem of crocking (both wet and dry) in corduroys, drapery and upholstery fabrics, when finished with red napthol dyes, can now be handled simply and economically. Hycar latex (water dispersion of a butadiene-acrylonitrile copolymer) can be applied to the fabric as an after treatment to provide greatly improved crock resistance.

Treatment with Hycar latex can be accomplished by using conventional padding equipment, followed by drying on pin or clip tenters. Tests with the AATCC Crockmeter shows no evidence of dye removal at all. Here is an economical way to better quality and satisfied customers!

Our technical sales personnel will be happy to show you how this can be done in your production setup.

Crock reduction is only one of the many problems that can be solved successfully by the use of the special textile chemicals produced by the B. F. Goodrich Chemical Company. Write for further information. Address Dept. TK-1, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

B. F. Goodrich Chemical Company
A Division of The B. F. Goodrich Company

GEON polyvinyl materials • HYCAR American rubber • GOOD-RITE chemicals and plasticizers • HARMON organic colors

smooth out, the size-level system would indicate a shortage in the size box; and the whole cycle started again: the valve in the size line would open, and again the system went from normal to underdrying to overdrying and back to normal.

The correction was a little more difficult than the detection. It involved modification of the way size was admitted to the box.

A preheating-tube arrangement was piped in the size box; and through a series of openings, the size was distributed equally across the box instead of being dumped into one corner. The result was effective; the thermometer controlling the temperature at this phase could do a better job of maintaining optimum conditions.

Pointers for Supervisors

(*Continued from page 164*)

down a flag without looking at the loom.

He works out a system of overhauling.

The rater rates the employee by indicating which statements describe the way the employee acts or the extent to which they describe him. With this sort of rating we determine whether the employee acts effectively (in the same way as good fixers) or ineffectively (in the same way as poor fixers). We're not concerned with labeling the man with adjectives; we're concerned with what he does on the job.

This sort of rating will require the supervisor, as all ratings should, to observe his employees frequently. But it reduces the strain on the rater's judgment by presenting him with concrete rather than abstract choices.

Drawing up forced-choice rating forms is a complicated, time consuming, and somewhat technical process. We are not recommending that they be used indiscriminately. What we are suggesting is that the idea behind this type of rating can be utilized by supervisors. This idea is that we judge employees in terms of behavior on the job. Without any formal rating plan at all, a supervisor can evaluate an employee pretty effectively by writing out some short statements which describe how the employee acts on the job—what he does that is effective; what he does that is ineffective.

With this sort of information the supervisor is in a good position to discuss strengths and weakness with an employee and to make suggestions for improvement. Any rater who has been through a discussion involving loyalty, initiative, dependability, etc., will un-

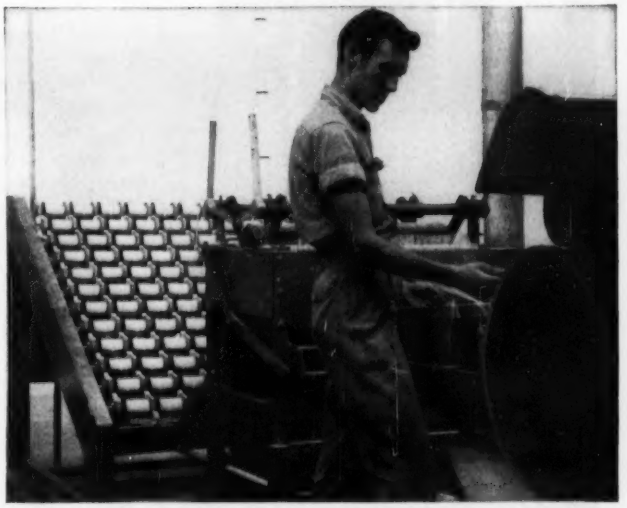
Rayon Reports

To Meet Demand, Avisco Expanding Range and Output of Filatex

Greatly enlarged capacity for producing covered Filatex elastic yarns, as well as bare latex core yarns, will soon make these extremely useful products available for more manufacturers.

New machines being installed at the Roanoke, Va., plant of American Viscose Corporation will be able to increase production of Filatex and will more than double capacity for making bare latex core yarns. They will also greatly increase the range of sizes, supplying them from 18's to 125's.

The expansion is in response to increased demand for both covered and bare coarse elastic threads for braiding and narrow fabrics. Filatex is already widely used for men's half hose, and children's socks. It is also used in surgical stockings and bandages, football pants, women's foundation garments, shoe fabrics, swim suits, and by the shirring and embroidery trades.



Operator inspects beam-to-spool machine at Filatex Department of American Viscose Corporation, Roanoke, Va., where new machines will soon boost production capacities.

The new capacity is expected to put Filatex yarns in suspenders, garters, elastic tapes and bindings, athletic supporters, gloves and wrist-bands and collars for outerwear garments.

Yarns will be available covered with rayon, nylon and cotton in a full range of sizes, as will bare latex core. The corporation's unique method of making Filatex will be continued for sizes finer than 65's.

RAYON 20 YEARS AGO

NEW YORK, February, 1933—Practically all ready-to-wear men's apparel made today is lined with rayon.

NEW YORK, February, 1933—Rayon dresses are getting top emphasis in department store advertising for spring fashions.

NEW YORK, February, 1933—The rayon industry is now an important employer of men and women in 15 states.

MAKE USE OF *Avisco*® 4-PLY SERVICE

To encourage continued improvement in rayon fabrics, American Viscose Corporation conducts research and offers technical service in these fields:

1 FIBER RESEARCH
2 FABRIC DESIGN
3 FABRIC PRODUCTION
4 FABRIC FINISHING

AMERICAN VISCOSE CORPORATION

America's first producer of man-made fibers
RAYON ACETATE VINYON* FILATEX®
Sales Offices: 350 Fifth Avenue, New York 1, N. Y.; Charlotte, N. C.; Cleveland, Ohio; Philadelphia, Pa.; Providence, R. I.

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VISIBILITY UNLIMITED

with

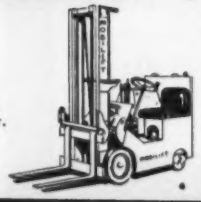
MOBILIFT FORK LIFT TRUCKS

A MOBILIFT operator can see the fork-ends when he picks up a load ...he can see where he's going! There's no groping for the load... no craning around vision-obstructing cylinders. *Unlimited visibility* between Mobil-chain uprights is just ONE reason you get faster, safer, more economical materials handling with Lev-R-Matic Drive MOBILIFTS. Here are other reasons why you can handle materials at less cost with MOBILIFT:

- **Lev-R-Matic PUSH-PULL controls for forward-back movement, lifting and tilting. NO GEARS TO SHIFT.**
- **360° steering wheel makes zero *inner turning* radius possible with stand-up models.**
- **Compact design for maximum maneuverability.**
- **Easy accessibility for servicing and maintenance.**
- **Powerful 3-cylinder gas engine.**

FOR SAFER FASTER MATERIALS HANDLING

STAND-UP MODEL
2000, 2500, 3000, 3500-lb. capacity.
63", 72", 83" Masts
Special Masts to order.
Write for complete specifications.



SIT-DOWN MODEL
2000, 3000-lb. cap.
63", 72", 83" Masts
Special Masts to order.

MOBILIFT Lev-R-Matic DRIVE

MOBILIFT CORPORATION
835 S. E. MAIN ST., PORTLAND 14, OREGON
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1113 Spring St. N. W., ATLANTA • 2724 Taylor St., DALLAS
2730 San Pablo Ave., BERKELEY

derstand the need for getting down to cases.

In summary, if judgment is necessary in evaluating some factors of job performance, we need to provide the sort of ratable items that permit judgments that are more practical and less difficult. Much of our effort in the field of merit rating has pointed toward "cures" for certain rater tendencies such as rating too leniently or rating at the average or rating on specific factors from general impression. Too little attention has been centered on the measuring instrument itself: the particular rating forms that are used. Even the best trained rater cannot make a poor rating form work. The intent of this article is to point out that a good rating form has to deal with the thing the supervisor has to deal with day in and day out: how the employee acts on the job.

Metallic Card Clothing

(*Continued from page* 139)

ends, a result of a poor start-up in picking.

3. *Fly.* There's a little more fly with metallic wire. Cards may have to be wiped off more often, but Columbus mops cards only every 8 hr.

Worried About Accidents?

Think you'd be in a pickle if the wire broke loose? Columbus' experience doesn't bear out this reasoning. It winds its own wire and has a crackerjack man to do it. If a smash does occur, he can have the card back in production in about 12 hr. This time does not include grinding the new wire down to the level of the old wire because the time required varies from minutes to hours, depending on the age of the clothing. But the 12 hr. does include tearing down the card, unsoldering the wire, unwinding to the bad spot, soldering, rewinding, and assembling the card.

Waste and Nep Record Is Good

A little less waste can be expected with metallic wire. The most recent test made at Columbus showed 4.24% waste for knee wire and 3.75% waste for metallic wire, at a production of 12¼ lb. per hr.

Nep control is at least as good as with fillet clothing, and particular attention had to be paid to this point when the mill went to the finer goods that it now produces.

Promising Outlook for Higher Speeds

Cylinder speed is 165 rpm., and

For more information, write direct or use Reader Service post card.

"WHERE DO YOU GET YOUR ALKALIES, JIM?

"I ALWAYS GO TO SOLVAY *FIRST* FOR ALKALIES···*Here's why...*

REG. U. S. PAT. OFF

SOLVAY

Chemicals
For The
Textile Industry
SODA ASH
CAUSTIC SODA
LIQUID CHLORINE
SODIUM NITRITE
POTASSIUM
CARBONATE

...**First off, I've found** that Solvay always takes care of its customers—in good times and bad! I know I can really depend on Solvay in a pinch.

I also like the treatment I get from the sales staff—always courteous and helpful. And it's convenient doing business with Solvay because one of their sales offices is located near me.

In addition, I feel that when I buy alkalies, I might as well get the "extras" that Solvay offers ...like the Solvay Technical Bulletins that give you the kind of information no other technical bulletins have. Same with the Solvay Technical Service staff, a group that operates on an industry-wise basis, with men who are experts in individual industries.

Then Solvay has over 200 local stock points that practically cover the country, and three centrally located plants. This makes for better delivery service.

And, of course, I know I get dependable quality and uniformity when I order from America's oldest and largest producer. That's why I always go to *Solvay first* for alkalies.

SOLVAY PROCESS DIVISION
Allied Chemical & Dye Corporation
61 Broadway, New York 6, N. Y.

BRANCH SALES OFFICES

Boston • Charlotte • Chicago • Cincinnati • Cleveland • Detroit
Houston • New Orleans • New York • Philadelphia • Pittsburgh
St. Louis • Syracuse

Soda Ash • Caustic Soda • Chlorine • Potassium Carbonate • Calcium Chloride • Caustic Potash • Sodium Bicarbonate • Ammonium Bicarbonate
Specialty Cleansers • Sodium Nitrite • Para-dichlorobenzene • Ortho-dichlorobenzene • Monochlorobenzene • Ammonium Chloride • Sesquicarbonate of Soda

DECREASED REPLACEMENT TIME means - INCREASED PRODUCTION...

5 SOLID REASONS show why today's high speed looms require less time for picker replacement when equipped with longer wearing Garland Rawhide Loom Pickers.

1. **REINFORCED STICK-HOLE** Molded rawhide reinforcements at the stick-hole cut down stick-hole wear in the new Garland picker. Result: *Longer picker life.*

2. **IMPROVED SPINDLE HOLE** The spindle hole is perfectly rounded, excavated, and strengthened by locked-in flanges at both ends. Result: *No reaming, no binding, stays round.*

3. **MOLDED FOR UNIFORMITY** The new Garland rawhide pickers are individually pressure molded to uniform dimensions. Result: *The elimination of filing and fitting.*

4. **STRENGTHENED PICKER HEAD** The stronger, heavier outside layer of rawhide eliminates the need for a rivet through the picker head. Result: *Perfect throw through a longer picker life.*

5. **FINEST MATERIAL KNOWN** Our long experience has taught us that only Water Buffalo Hides possess the strength and elasticity that are so necessary in building a picker to meet today's high speed requirements. They are *tough enough to stand up* under terrific punishment, yet will yield just enough to be kind to your shuttles, your sticks, and your looms.

Garland MFG. CO. SACO, MAINE

Manufacturers of Rawhide Loom Pickers for over 80 years

the other speeds are also standard. But Columbus feels that the possibility of going to higher speeds successfully is greater with metallic clothing than with fillet because the metallic wire will not have a tendency to "throw out" because of the greater centrifugal force at the higher speeds.

Right now, card production ranges from 8 to 12¾ lb. per hr.

Answers to Some of Your Questions

What kind of cotton does Columbus use? A 50-50 mix of 1-in. Middling and Strict Low Bright.

What's the opening and picking setup? Saco-Lowell F-7 blending feeders with No. 6 air filters and No. 7 bag units. No. 11 Saco-Lowell waste and dust extractors. No. 12 Saco-Lowell lattice openers. Superior cleaners, Kitson three-beater pickers with a No. 6 condenser and a Lummus gyrator section behind the pickers.

How wide are the cards? 45 in.

What weights are fed and delivered? Columbus uses a 14-oz. lap to make a 57-gr. sliver.

What's the set-up after carding? Two processes of drawing, Whitin Superdraft roving, and both H & B four-roll and Saco-Lowell Roth spinning.

What kind of metallic wire is used? Platt's metallic wire, No. 9, for the cylinder and doffer. Teeth on the cylinder wire are 12 per in., on the doffer 14 per in.

Opening and Picking

(Continued from page 143)

ton supply would permit to make more uniform mixes over a longer period.

The bale opener was instructed to watch out for, and set aside, any wet bale or bales that showed signs of transportation damage. In hot weather or on cotton bales stored in hot rooms, the bale opener should report all bale hoops found to be sticky. This system will prevent many small black spots found in the finished cloth that can be traced to soft, gummy, asphalt coating on the bale hoops. This trouble is usually prevalent in hot weather.

When possible, cotton bales should be opened at least 6 hr. before use. This aerating and fluffing up of the cotton tends to condition moisture content, loosen up hard patches, make the leaf and trash easier to remove, and equalize the feeding from bales of varying density.

Opener hands should use care in picking the cotton from the bagging. Small pieces of jute or sisal twine are difficult to remove and

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Part of a battery of condensation kettles especially designed for the new plant by Ciba engineers.

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Boston Chicago Charlotte
Providence San Francisco Philadelphia

often show up in the woven cloth. Strong fibers of manila or sisal can cause end breakage and bad-running work in the roving, spinning, and spooling processes.

Opener tenders should watch carefully when feeding for false-packed bales, gin droppings, damaged cotton, wet or damp cotton, and other irregularities in the stock. A few pounds of trash or damaged staple fed into the openers can be spread through many pounds of finished yarn and make much imperfect cloth.

Equal amounts taken from each bale in the mix on each feeding cycle will give more uniform blending. Small bundles, about 10 lb. in weight, should be taken from each bale on each feeding. With multiple blending feeders in each unit, this method gives excellent blending of all the bales in the mix.

Get Maximum Opening

The maximum opening effect should be obtained from each feeder. The opening efficiency can be judged by the condition of the stock delivered to the feed table. Long stringy masses indicate too wide a setting of the combing roll to the pin apron. Reduce the comber-roll setting until ropy stock is eliminated. The setting required will depend, to a large degree, on the density of the bales being run. With a closer setting, the pin apron may be speeded up, if needed, to get the required production.

A curled or stringy production from the vertical opener can usually be prevented if suitable precautions are taken. First, make sure that the stock received from the blending feeders is free from all traces of stringiness. Keep the vertical-opener beater speed down between 600 to 650 rpm. Increase exhaust-fan speeds to remove stock more quickly from the vertical opener. Don't overload the vertical. Productions of from 1,200 to 1,400 lb. per hr. are suitable. When long stock is being run, many mills arrange a by-pass around the vertical opener, taking the stock direct from the feeders to the lattice openers. Long-staple cotton has a greater tendency to curl than the shorter staples.

Picker Maintenance Important

The engineer's report on the picker room listed several items that needed attention. Beater and fan bearings on some pickers should have immediate replacement. Feed rolls and pedal bars needed more frequent scouring. Apron bearings and gears on the breakers listed needed replacement. More thorough and careful lubrication on all

Rafter-high storage of bulky boxed cereals at Kellogg Co., Battle Creek, Michigan.

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If your mill hasn't yet switched to Fullergript, write us for detailed information. Won't you please tell us the type of card, the length and diameter of your core, and whether you prefer right* or left-hand spiral brushes?

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parts would have prevented much of the wear shown.

New pin lags were needed on the finisher sections shown. Friction shoes and draft passages from the fans were very dirty. Evener belts should have been adjusted to run normally near the center of the cones. Beater chambers should have been cleaned regularly and thoroughly. Better fixing and supervision should have been provided for better operation.

Beater and fan speeds were found close to the mill standard speeds. It was pointed out that a reduction in beater speeds and beats per inch would give equally good results with less damage to staple and less wear on machine parts. Blade beaters were in good condition except for some that were listed for reversal to give a new edge for contact with cotton. Feed-roll and grid-bar settings were fairly uniform and close to standard. The settings and speeds shown in the panel report on page 143 were drawn up to give better results.

Picker laps weighed directly from the pickers were uniform and within tolerances. Yard-by-yard weighings did not show excessive variations. However, reweighings of accepted laps on the racks were outside the ½-lb. tolerance and should have been rejected.

Greater attention was needed in the weighing and recording of lap weights. All lap weights should have been corrected to moisture regain. For these a simple table for correction can be used, or a direct-reading weight indicator that corrects weight for the prevailing humidity is available on the market.

In general, experiments should be made on one line of the one-process pickers with the intermediate picker process omitted. The breaker section with a three-blade beater and the finisher section with a Kirschner beater should give sufficient cleaning on middling 1⅛-in. cotton.

If the results of such changes prove successful on one line, all the pickers can be changed to this system. With the intermediate section removed, a feed table may be installed to take the stock direct from the breaker to the finisher section without moving the present position of the finisher section.

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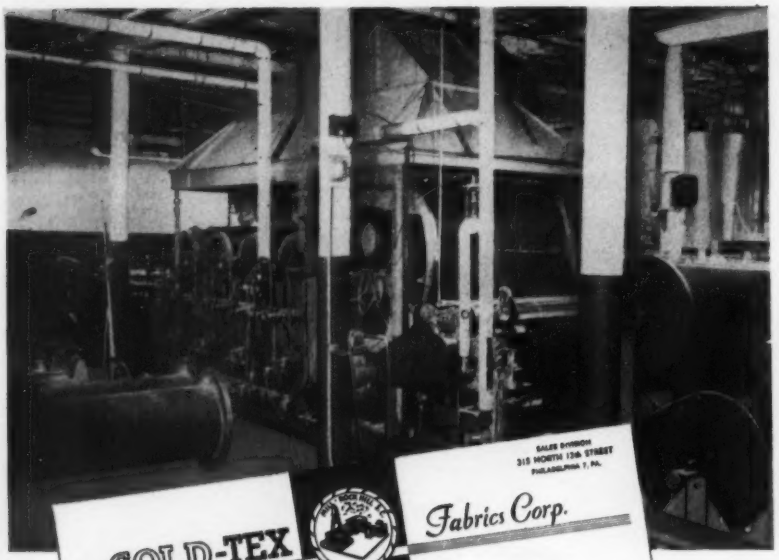
GOLD-TEX
Fabrics Corp.
MILL DIVISION - P. O. BOX No. 630 - ROCK HILL, S. C.
October 13, 1952
Mr. William Johnson, General Manager
Charles B. Johnson Machine Works
P. O. Box 1507
Paterson, N. J.
Dear Bill:
After twenty-one months of operation of the nine cylinder slasher we are so highly pleased that we would like to express our appreciation of the job that has been done here.
Frankly, when the machine was recommended by your representative, Tom Lucas of Lucas Associates, Inc. of Charlotte, N. C., there was considerable doubt in our minds as to the feasibility of this type of equipment for our heavy cotton yarns. However, this one nine-cylinder machine has replaced three conventional two-cylinder cotton slashers. We also find that our weave room efficiency increased immediately upon the installation of the slasher because of the better wound warp.
We are highly pleased with this machine from the standpoint of production and return on investment.
Thanking you, we are
Yours truly,
GOLD-TEX FABRICS CORP.
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Plant Engineer
General Manager

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Weave room efficiency increased immediately . . .

Highly pleased from the standpoint of production and return on investment" says GOLD-TEX.

Full story on request.

Charles B. Johnson

PATERSON **NEW JERSEY**

DAP Process

(*Continued from page* 111)

Note: Acetic acid in final rinse inhibits bacteria growth while cloth is awaiting drying.

Regular method (sodium sulfate)

Bring cloth to boil in 45 min. with 10% calcined Glauber's salt. Dyestuff is added as soon as cloth is wet out. Boil 1 hr., drop, rinse.

Another dyeing of this Geigy dyestuff was made by the recommended procedure. A comparison of the three swatches showed the DAP dyeing to be 20% heavier, more bloomy, with more uniform coverage than the others. The regular method produced a dyeing that was redder in cast, hungry looking, and less even. The dyeing made by the recommended procedure was greener in cast but otherwise quite the same as the regular dyeing.

Cibalan Brown TL (neutral) 2%

Pacific method

Same as previous dyeings.

Regular method

Same as regular method above, except 3% ammonium sulfate is added with the Glauber's salt.

These two dyeings showed the DAP swatch to be 15 to 20% heavier, not so hungry looking, and slightly redder.

Lanasyn Green BL (neutral) 2%

Two dyeings of this color were dyed exactly like the Brown TL above. The DAP sample looked nearly 30% heavier, slightly bluer, and bloomier and had better coverage.

Irgalan Orange R (neutral) 2%

These two dyeings showed less difference than the others, but 15% increase in depth and somewhat better coverage were obtained by the DAP method.

Here Are Other Recommended Procedures

Bottom Chrome Dyeing

The chroming bath is prepared as follows:

1% chrome
3% tartar
0.25% anionic wetting agent

The bath is raised to the boil, and boiling is continued for 1¼ hr. The cloth is washed; then 5% DAP is added. After the bath is run for 10 min., the dyestuff is added (previously dispersed in an adequate amount of water at about 150° F. and well stirred). The temperature is slowly raised to the boil. The length of time is governed by the weight and construction of the fabric. Boiling is continued for 2 hr. Exhaust with

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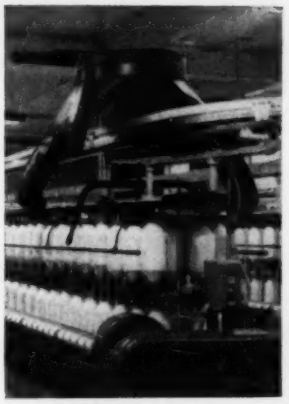
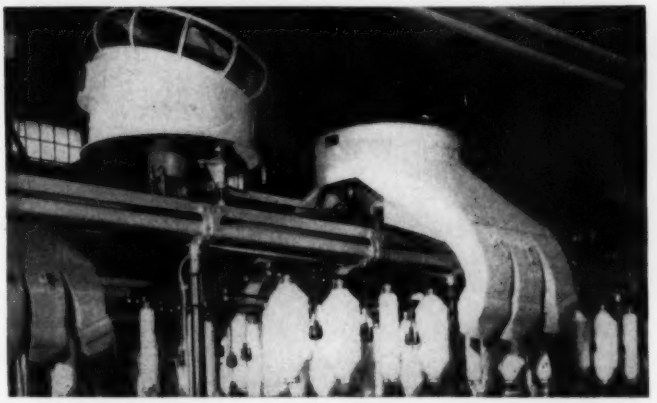
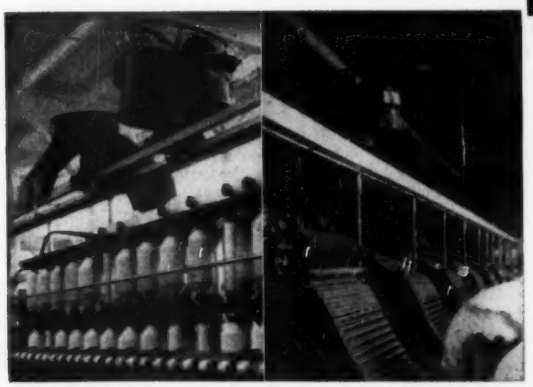
Traveling Cleaners remove lint from spinning frames and other textile machinery more thoroughly than by hand. Units run on track just above frames and direct blasts of air downward over the machine surfaces. Motion along track is either continuous or reversing to suit machinery layout and required cleaning period. Air distributors are of various sizes and shapes. Air volume, velocity and direction are adjustable. Electric conductors are enclosed and insulated for safety.



When **Flexible Cuff** extensions are used on Parks-Cramer air distributors, air blasts may be directed to relatively inaccessible or low down areas for more effective cleaning.





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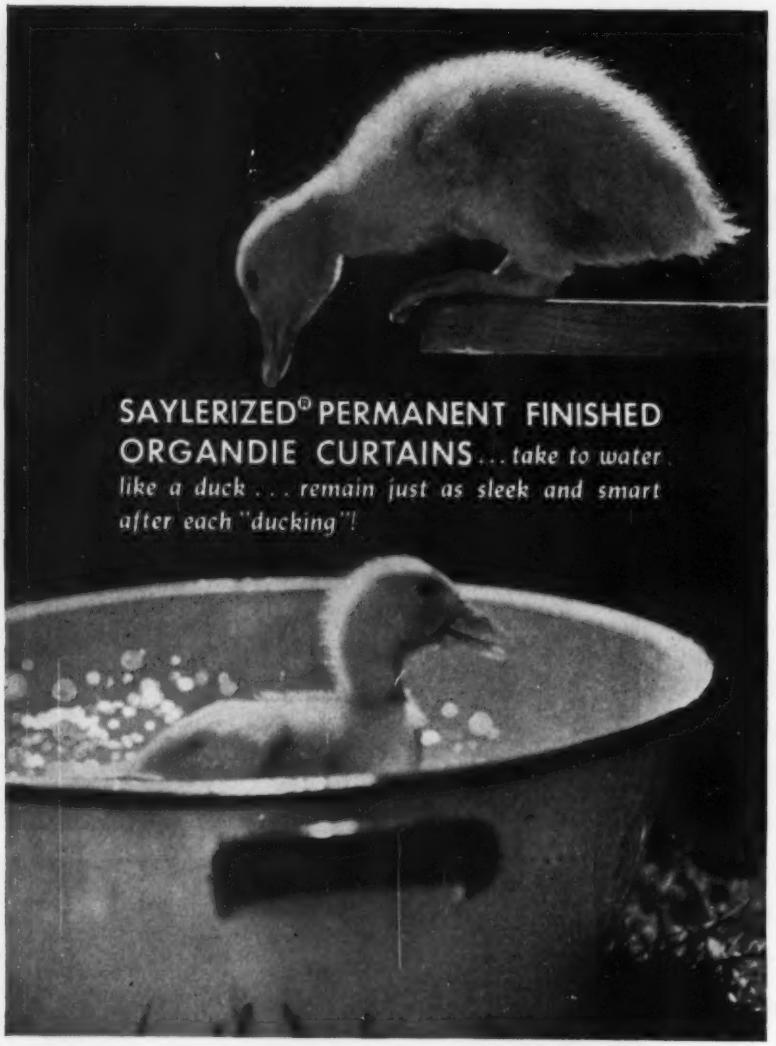
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1 to 2% ammonium sulfate after 1 hr. at boil if necessary.

Meta Chrome Dyeing

Before dyeing, the cloth is treated with 5% diammonium phosphate for 20 min. at 180° F. and then rinsed. This treatment neutralizes any acidity in the cloth from the wet finishing.

The dyebath is prepared as follows:

XX% chrome desired
5.0% DAP
1.0% highly sulfonated castor oil

The bath is run for 10 min., the dyestuff (previously dispersed in an adequate amount of water at about 150° F. and well stirred) is added, the temperature is slowly raised to the boil, and boiling is continued for 2 hr. Exhaust with 1 to 2% ammonium sulfate after 1 hr. at the boil.

Care of Electric Motors

(*Continued from page 127*)

Unused motors should be stored in a place free from vibration in order to avoid stationary indentation.

LUBRICATION. Excessive wear, or possibly freezing, of a sleeve bearing may result from an insufficient supply of clean oil of the correct grade. Lack of oil may occur as a result of neglect, a loose oil gauge or drain plug, or a cracked oil well. Similar troubles may be expected if oil rings fail to revolve because of being impeded by dirt or other foreign matter. Oil-ring failures also result if the rings are not concentric or if the joint in an oil ring has parted.

Foreign matter may clog up the oil grooves and gutters of a bearing, especially if the oiling system has been neglected. Clogged bearings cause the temperature of the bearings to rise and often results in a frozen shaft and bearing. The temperature of the bearings should be checked by hand at frequent intervals. The oil rings should carry clean oil to the shaft. The rings can be checked at the same time the temperatrue of bearings is checked.

Small motors are frequently fitted with sleeve bearings that are lubricated with oil-soaked wool yarn. Yarn-packed housings should be given a few drops of oil every few months, and a check should be made to insure that the wool yarn is being pressed into contact with the shaft. Oilite-sleeve bushings are sometimes used in place of the conventional-sleeve bushings. The Oilite bushings need a few drops of oil once each year.

Bearing troubles may also result from excessive stresses on the motor shaft as a result of belt tension, overhung-motor pulley, or pinion too far

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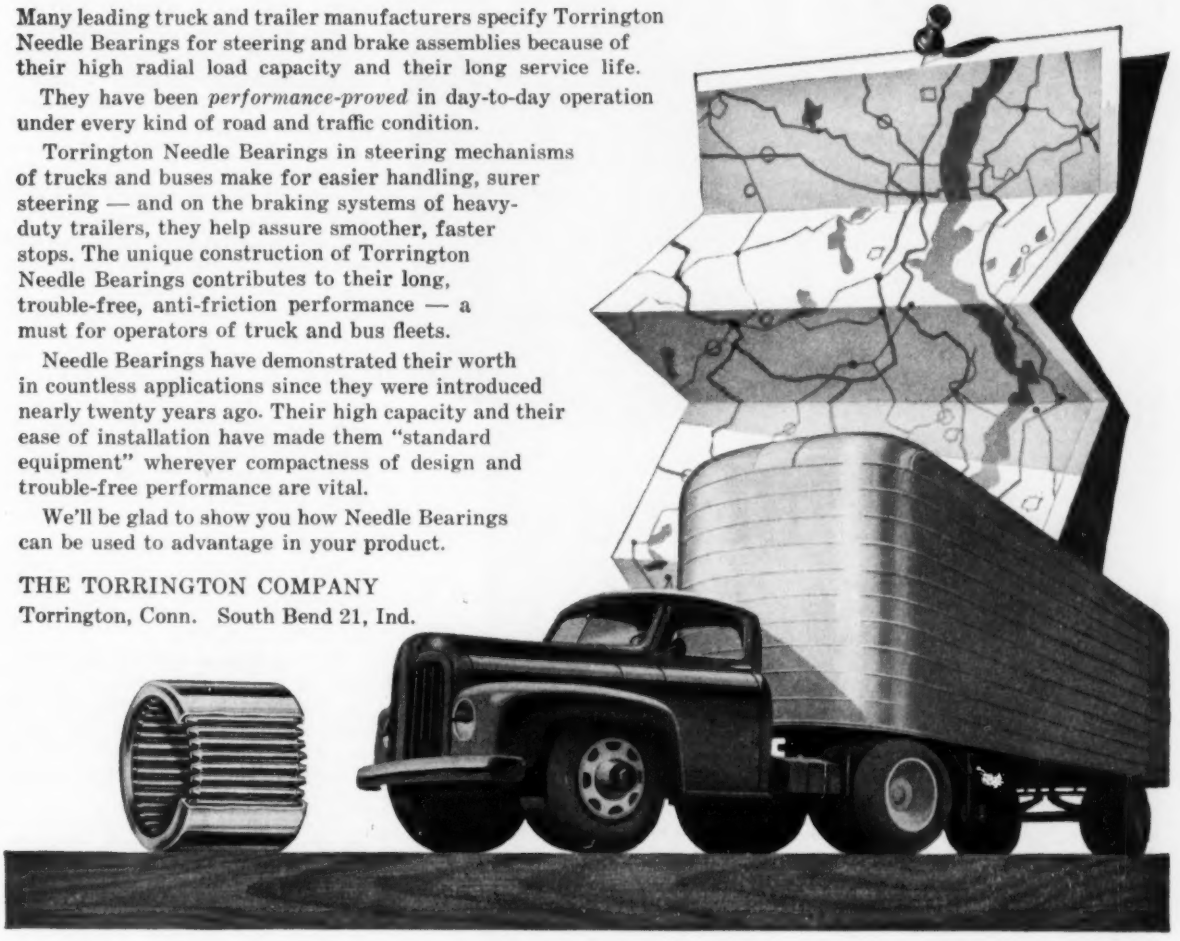

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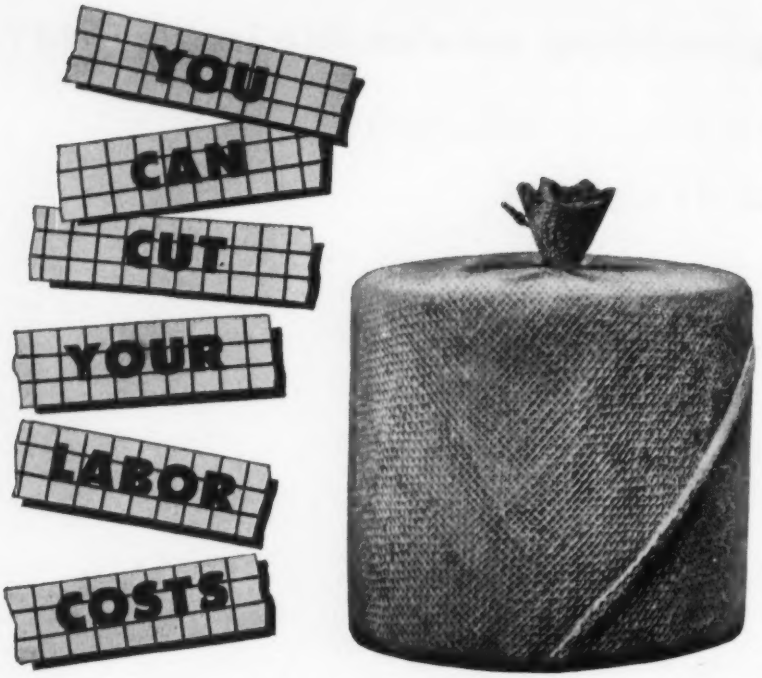

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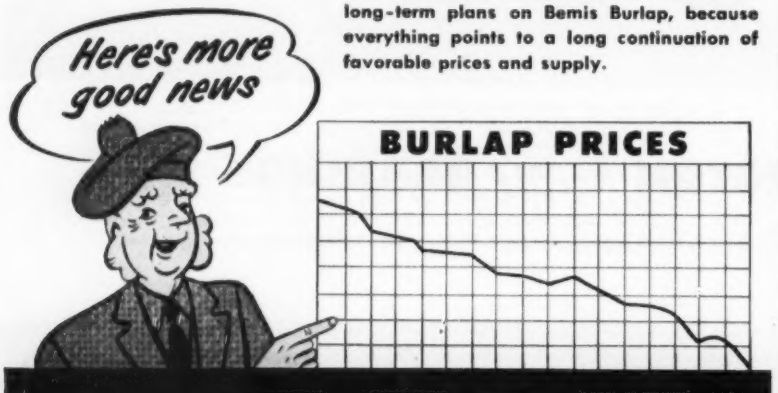

Bemis

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from the bearing. Other bearing troubles will develop if the motor is out of line with the driven shaft on a direct-coupled drive. The latter defect may result from subsidence or other failure of the foundations. Diagram on page 127 itemizes the bearing points that should be watched.

2. Motor Ventilation and Loading

The insulation of motor windings will deteriorate at an increased rate if the motor is allowed to reach a high temperature. Overheating a motor can be caused by placing the motor in a small enclosure or in a hot spot near a roof. The restriction of the air inlet or outlet will also cause a motor to overheat. Often a motor runs hot because there is an accumulation of lint or other foreign matter on the ventilating screens, in the ventilating ducts, in the cores of the windings, or on the motor case.

A simple test of the ventilating conditions may be made by holding a hand in front of the air outlet of a motor. If the air current is feeble, restricted ventilation is the cause. A strong hot blast of air indicates mechanical overload or an electrical fault. If the motor is excessively hot, the temperature of the windings may be measured and compared with the maker's specification. Chart on page 127 gives an indication of how the temperature of a motor may rise when the motor is running.

The mechanical load on the motor may be indicated by measuring the current input to the motor with an ammeter of suitable range. The readings of the ammeter may be compared with the full-load-current mark on the nameplate of the motor.

Table on page 127 covers the amperage of a wide range of motors. In comparing these readings, it should be remembered that the current taken by a motor to develop a given horsepower is practically inversely proportional to the voltage at the motor. A high current reading may be due to mechanical overload or to low voltage. The voltage at the motor terminals should be measured with the motor running fully loaded.

Constant overloads will reduce the life of the motor, especially if the motor operates in a hot position. Mechanical overloads result if a motor is used on heavier work or at higher speeds than is normal for the motor. Blunt cutting tools, wear or faulty adjustment of driven machines, tight belts, and faulty motor alignment contribute to motor overloading.

3. Motor Faults

When measuring the current in a multiphase motor, the measurements

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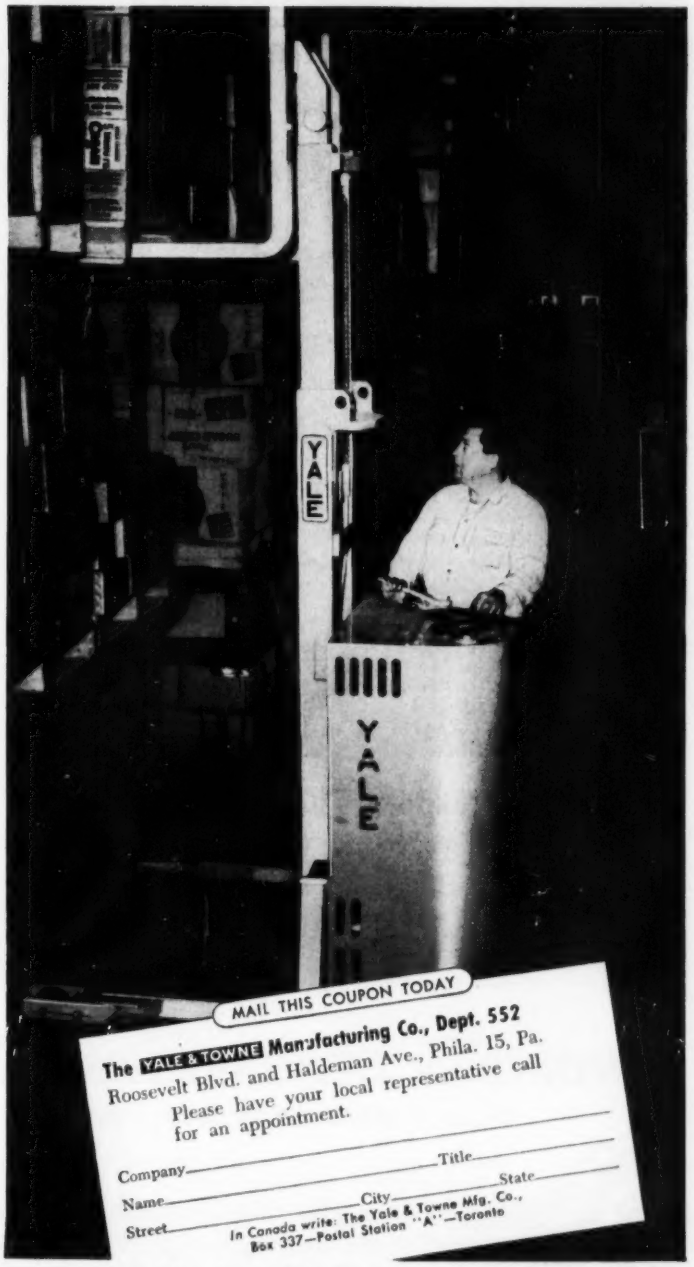

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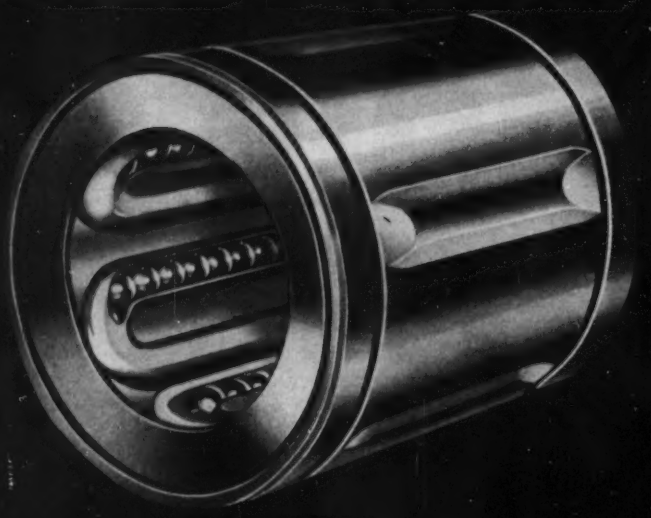

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Also manufacturers of NYLINED Bearings — DuPont NYLON within a metal sleeve—for rotation and reciprocation.

should be made in each of the phase lines. If there is zero current in one line, together with an increased current in the other lines, it is likely that single-phasing is taking place. Single-phasing may be caused by a melted fuse, a loose or burned connection, or a contact that is burned, worn, or badly adjusted.

Chart (page 126) shows an open circuit in one supply line to a Delta-connected three-phase motor. This condition will result in a considerable increase of current in the phase of the windings that are connected across the sound lines, with less increase of current in the sound lines. As a result, line-connected over-current trips may not afford complete protection against such a fault.

All screwed or bolted connections that are subject to vibration should be provided with lock nuts or lock washers. Care should be taken that the fuses protecting a three-phase motor are the same size in each pole to prevent single-phasing. A small fuse installed with two large fuses will melt prematurely and result in single-phasing.

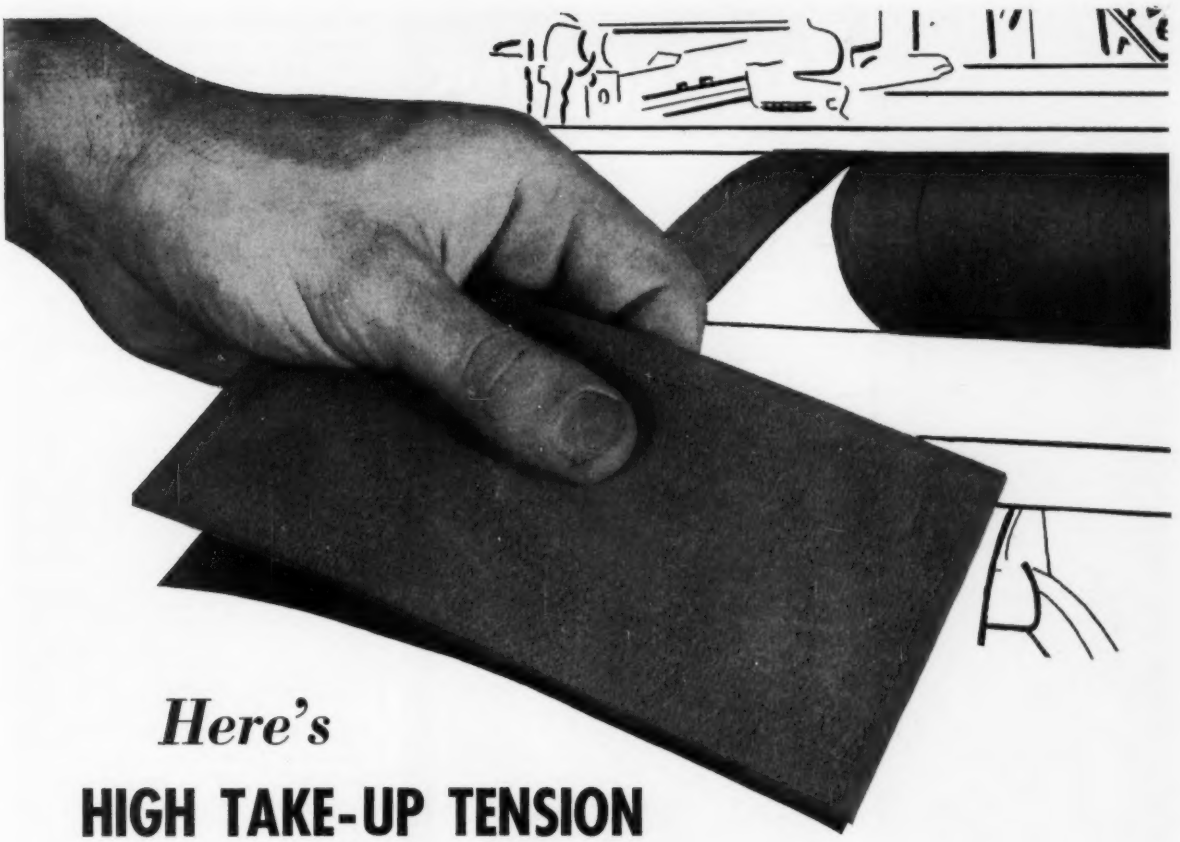
Overheating at one particular part of a motor is usually caused by a bad connection, a short circuit, or a ground fault in the motor. Rapid overheating and burning out of the motor usually follows a short circuit or other failure of the insulation. The over-current protective trips of each motor starter should be set to open the starter when the current becomes higher than 25% above the full-rated current. Attention will then be drawn to defects, such as overloading, before the insulation is damaged.

4. Gear and Motor Faults

In motors other than squirrel-cage, the weakest parts are usually the brush gear, slip rings, and commutator. These parts are subject to both wear and burning if not properly maintained. Brushes should be inspected periodically for freeness in their holders and for adequate pressure. The brushes must be renewed before they wear out of the range of the pressure finger. Excessive brush wear will result in the end of the flexible pigtail connections rubbing on the commutator or slip rings.

Commutators need special attention. If the copper bars wear down faster than the intersegment micas, the projecting micas may prevent the brushes from making proper contact with the commutator. Usually, it is best to recess the micas slightly; but the recesses must be kept free from carbon dust or other conducting matter that may result in short circuiting.

Short circuits across the micas are



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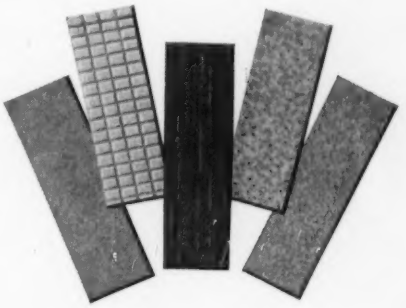

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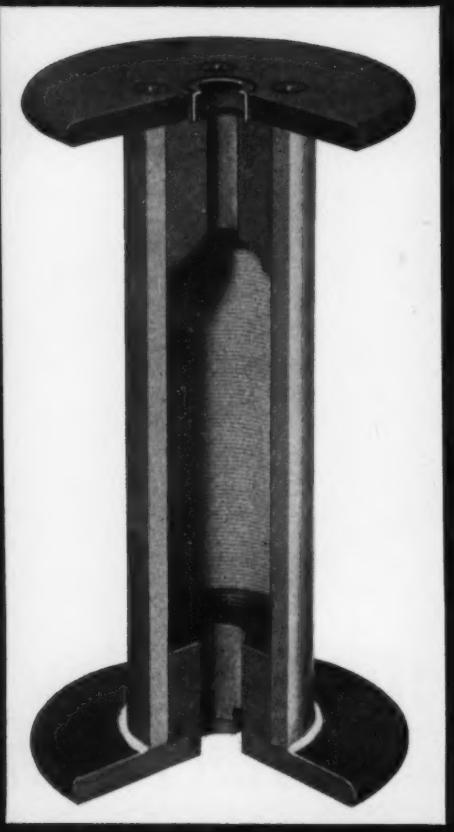

BUILT TO FOIL NYLON'S GRIP

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often revealed by a ring of sparks around the commutator. Neglect of this signal is apt to result in burned-out armature coils.

Intersegment micas may need scraping periodically. (A bone scraper is useful). Any carbonized (burned) mica should be scraped away until a clean white surface is revealed. If this scraping results in a hole in the mica, cement should be used to refill the hole.

An open circuit in the armature is fairly obvious; it causes violent sparking at the brushes when the motor is loaded.

The sparking results from the burning of the copper segments connected to the faulty coil. This condition may result from solder having melted from the commutator connections, possibly as a result of overload or a short circuit between the segments, or from a broken or fused wire in the armature.

When inspecting the commutator, the string binders around the connections should be examined; these binders sometimes rot and break. Bad string binders should be replaced.

KEEP SURFACES SMOOTH. The contact surfaces of slip rings and commutators should be kept smooth. A dirty commutator may be cleaned with carborundum cloth. A grooved commutator can often be refaced by means of a carborundum block that is shaped to the curvature of the commutator. If the commutator or slip rings are not concentric, they may need to be trued up in a lathe. The minimum amount of copper should be removed.

Wear of a commutator can be minimized by staggering the brushes on their spindles to use the full width of the commutator. The brushes on two adjacent spindles should run on the same track, and the brushes on the next two spindles should run on another track. It is not wise to run all positive brushes on one track and all negative brushes on another track. The insulation of the brush gear, commutators, and slip rings should be kept clean. A small paint brush is useful for this purpose.

Insulation may fail prematurely if it is allowed to absorb moisture or oil. Spare motors should be stored in a dry place. Care should be taken that oil does not leak onto motor windings from the bearings of the motor or from another motor. Overoiling should be avoided.

Oil leakage from motor bearings may result from wear and badly designed bearings. On certain types of motors, it is useful to drill a few holes in the motor case at the lowest points to drain surplus oil clear of the windings. Persistent oil leakage from a

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bearing can often be prevented by fitting a leather washer to act as a gland.

[Editor's note: Under extreme oily conditions, neoprene is considered to be superior to leather.]

5. Testing the Insulation

Since most of the insulation on a motor circuit is not accessible for inspection, the insulation resistance should be tested every few months with an insulation testing set. The testing set should be capable of applying about twice the normal motor working voltage. All tests should be carried out under approximately the same conditions because the insulation resistance of most materials varies with the temperature.

The motor circuit should be isolated and a test made between the windings and frame, with the starter closed to include all the circuit to the isolating switch. Tests may also be made between the phases of the circuit if a Star-Delta starter is used, the starter being "off" when tests are made. It may be necessary to open the voltage-coil circuit when testing between phases.

To open the circuit, the over-current trip contacts connected in the coil circuit may be separated or an electrical "stop" button may be pressed. Tests should also be made on any separate or secondary circuits, such as the rotor circuit of a slip-ring motor or the auxiliary windings of an a.c. commutator motor. It should be noted, however, that such circuits are often intentionally grounded.

The test results should be compared with those obtained on other occasions. A falling test often indicates impending failure. If the test result is below 0.5 megohm, it is advisable to disconnect the various parts, such as the starter, cables, brush spindles, individual windings, etc., as far as may be necessary to determine which part is responsible. If all parts show a low result, the cause is usually dampness. When the part with the low test has been located, a careful inspection will often reveal the cause.

Frequently, the cleaning of some part or the renewal of a small piece of insulation will avoid a major breakdown.

Attention to the motor as suggested does not take long when carried out as a routine maintenance feature. Proper care of the motor will result in a considerable deduction of repair costs and loss of production due to breakdowns.

PUT THAT SCRAP BACK TO WORK

AN INDUSTRY GROWS IN GREENSBORO

The formation of the Cone Export and Commission Company in New York City in 1891 went unnoticed by the people of the thriving little village of Greensboro, North Carolina. There was no indication that this new organization which was established for the purpose of selling Southern-made cotton fabrics would become a valued corporate citizen of the Greensboro community. However, within a period of two years, Greensboro looked with pride upon the decision to move there from New York the main office of the Cone organization.

This turned out to be the foundation on which a vast textile enterprise was built. By 1896 the Proximity Manufacturing Company was producing the first Cone denim. A short time later cotton flannel was being woven on the looms of the Revolution Cotton Mills, and an increased demand for Cone denim resulted in the construction of White Oak Cotton Mills, the world's largest denim plant.

These manufacturing operations along with the Proximity Print Works Plant made of Greensboro the focal point of Cone interests in the early days. But it was not for long. Additional mills were constructed or acquired in other localities throughout North Carolina, South Carolina and Alabama. Today CONE MILLS CORPORATION includes 17 spinning and weaving plants housing 589,564 spindles and approximately 17,000 looms. In addition, there are three modernly equipped printing and finishing plants and one diaper plant. More than 16,500 people of the South have a part in processing the millions of yards of fabrics turned out annually by these 21 units.

Cone Mills Corporation is the country's largest manufacturer of denims and cotton flannels and is also an important producer of corduroys, drills, twills, suedes, towels, wash cloths, jeans, print cloths, plisses, diapers, sateens and coverts.

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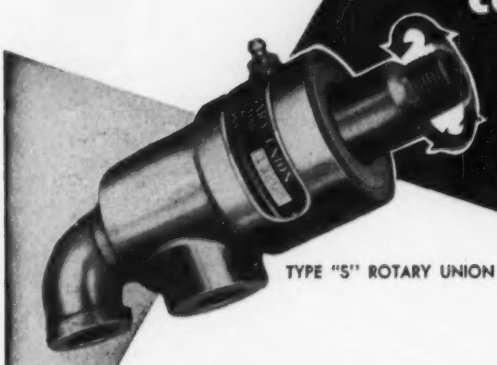

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Books of Interest

New Edition Of ASTM Standards

ASTM STANDARDS ON TEXTILE MATERIALS With Related Information, Committee D-13 on Textile Materials, American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa.; paper, 660 pages, $5.

The latest edition of this compilation includes 99 specifications, test methods, and tolerances developed by ASTM Committee D-13. Considerable other related material is also given.

Standards cover asbestos, bast and leaf fibers, cotton, glass textiles, rayon, acetate, silk, wool, pile fabrics (carpets), felt, general fibers, fabrics, yarns, threads, and cordage. Identification, qualitative and quantitative analysis, and resistance to insect pests and microorganisms are also given.

General test methods cover testing machines, humidity, and interlaboratory testing. There are tests on stretch and snag resistance of hosiery and a recommended practice for the designation of yarn construction.

Extensive sections give photomicrographs of common textile fibers and photographs of defects in woven fabrics. There is a glossary of textile terms and terms relating to hand of fabrics.

Appendices cover basic properties of textile fibers, a psychrometric table for relative humidity, a yarn-number conversion table, proposed methods on the evaluation of properties related to the hand of soft-finished woven fabrics, accelerated ageing of textiles, estimating the clean-wool content of wool in the grease, fire-retardant properties of treated felt, proposed recommended practices for calculating the number of tests to be specified in determining average quality of a textile material, and the evaluation of the fineness of cotton fibers by resistance to airflow by means of Arealometer and Micronaire tests.

A convenient table of contents (by subject and ASTM serial designation) and an index are included.

Biography of the Cotton-Gin Inventor

THE WORLD OF ELI WHITNEY by Jeannette Mirsky and Allen Nevins; The Macmillan Co., 60 Fifth Ave., New York 11, N. Y.; cloth, 346 pages, $5.75.

In 1733 John Kay patented the fly shuttle and thus created an unprecedented demand for cotton yarns, as wool weavers ignored the invention. In 1764 James Hargreaves perfected the spinning jenny; in 1769 Richard Arkwright harnessed the

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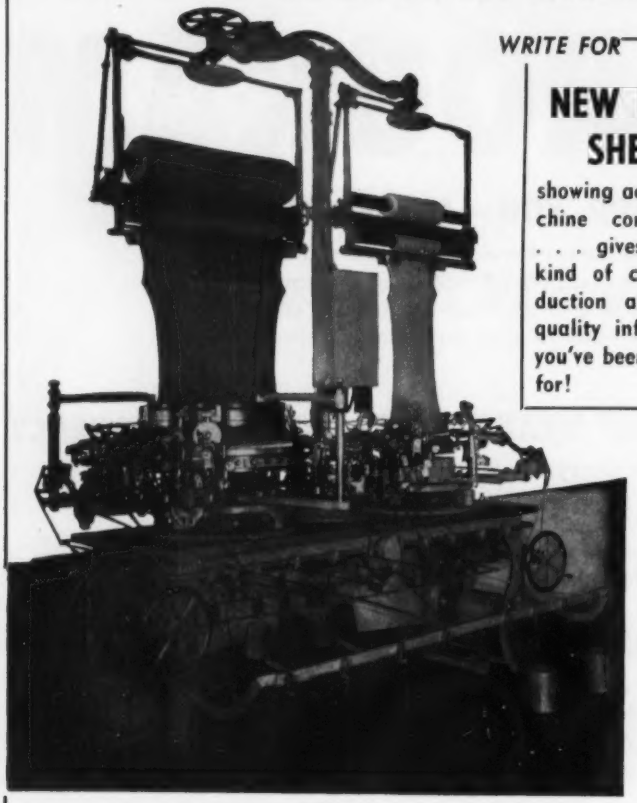

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This book is the first full-length biography of the man who, by the invention of the cotton gin in 1793, made such a cotton-export record possible. The story is good reading for the textile man with an interest in the early flowering of that practical American adaptability that has led us to our present industrial might.

Helpful Background For Figuring Mill Margins

MARKETING AND MANUFACTURING SERVICES AND MARGINS FOR TEXTILES by L. D. Howell, U. S. Dept. of Agriculture; Supt. of Documents, U. S. Govt. Printing Office, Washington 25, D. C.; paper, 294 pages, 60¢.

This well-documented report, which brings up to date the now out-of-print Technical Bulletin 891, *Marketing and Manufacturing Margins for Textiles*, 1945, summarizes the nature, practices, and equipment used in the marketing and manufacturing of cotton, wool, rayon, and silk.

The new detailed data given are taken from both governmental and private reports. They will prove useful to both cotton and woolen mills interested in reducing costs and in expanding their markets. Over 120 detailed tables on various aspects of the subject are given throughout the book. More than 100 references to literature in the field are given on the final six pages.

Study of U. S. Increased Productivity

PRODUCTIVITY AND ECONOMIC PROGRESS by Frederick C. Mills; National Bureau of Economic Research, 1819 Broadway, New York 23, N. Y.; paper, 36 pages, 75¢.

Over the last half century the real national product of the United States has increased fivefold while our population has doubled. Therefore, output per capita has increased two and a half times over the last 50 years.

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Revised Edition On Motor Controls

CONTROL OF ELECTRIC MOTORS, Third Edition, by Paisley B. Harwood; John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y.; 538 pages, $7.50.

This book is a further revision of a standard work on the design, construction, and application of controllers in several industries, including the textile manufacturing.

Arranged conveniently by motor types, the book includes material on automatic regulating systems, new data on calculating the accelerating and decelerating time of mechanical systems, a discussion of a.c. and d.c. motors (operation, characteristics, and types of control), and sections on pilot devices, accessories, wiring diagrams, and construction details.

Acetate and Rayon Processing Techniques

RAYON TECHNOLOGY, 2nd Edition, by Members of the Staff of Textile Research Dept., American Viscose Corp., McGraw-Hill Book Co., 330 West 42nd St., New York 36, N. Y.

This new second edition of a book originally published in 1948 contains a wealth of new facts and techniques not covered in the first edition. In all, 52 new pages have been added to cover rayon and acetate processing completely, from opening to finishing on all types of machinery commonly used in the industry.

Two new chapters have been added: one on the industrial applications of rayon, acetate, and other man-made fibers; and another on textile chemicals as applied to rayon and acetate.

For the man interested in techniques developed in the rayon and acetate processing field in the last five years, this book is basic material.

British Text On Warp Knitting

WARP KNITTING TECHNOLOGY by D. F. Paling; Harlequin Press Co. Ltd., Old Colony House, South King St., Manchester 2, England; cloth, 232 pages, $2.

A scarcity of textbooks on warp knitting has long been a handicap to mills and individuals who wish to extend their knowledge on the subject and possibly enter the field. This British text meets a great deal of this demand very well, since it deals in general terms with various aspects of warp-knitting machinery and warp-knit fabrics.

Chapter heads include the following: bearded-needle warp knitters and their mechanisms; single- and two-bar fabrics, laid-in and cut-presser fabrics; knock-off laps; the F.N.F. machine and its mechanisms; raschel warp knitters, their mechanisms, and raschel single-needle-bar and

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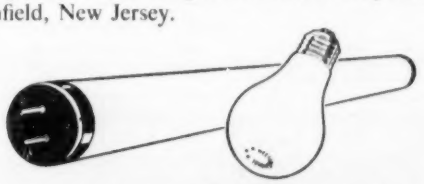
As in so many other industrial installations, the new Westinghouse 400 Watt J-H1 and the 1000 Watt C-H12 Fluorescent-Mercury Lamps met the demand for longer burning life—more economical performance due to lamps of higher efficiency—and reduced maintenance costs.

A pleasant, golden-white working light is provided by the Fluorescent-Mercury Lamp, which is both flattering to personnel and suitable for most types of lighting service. The rated lives of 4,000 to 6,000 hours respectively of the 1000 Watt C-H12 and 400 Watt J-H1 assure minimum maintenance. And the J-H1 and C-H12 may be operated from ballasts now used for the 400 Watt and 1000 Watt Mercury Lamps.

These Fluorescent-Mercury Lamps are recommended for large-scale outdoor as well as indoor applications. For 480 volt lighting circuits and for street lighting where 1000 Watt lamps are to be used, the new B-H15 is recommended.

For detailed information on how the world's least expensive source of mass white light can be employed in your present or planned lighting installations, write to Lamp Division, Westinghouse Electric Corporation, Bloomfield, New Jersey.

Golden-White Light Shows Real Colors. Golden-white light of Fluorescent-Mercury Lamps eliminates the need for incandescent color correction, even in color-coded assembling operations. This high-quality white light improves worker morale, aids production in industrial installations of every kind. And the long 4,000-to-6,000-hour burning life of the Fluorescent-Mercury Lamps reduces maintenance costs.



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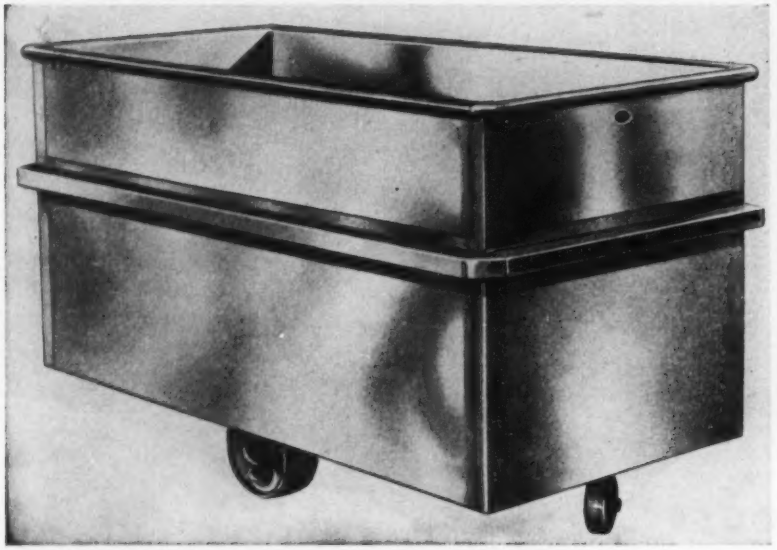

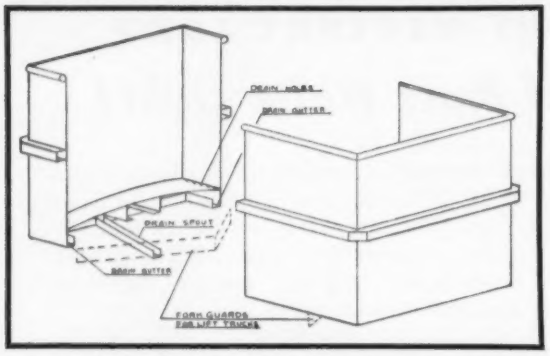

Curved bottom drains liquids to sides.

Gutters at sides lead liquids to drainage ducts at either end and discharge toward bottom center of the truck.

For better handling of cloth and more healthful conditions, efficient dyers are using a new type GLASCO Stainless Steel Truck that drains continuously toward the center of the truck.
Effects of this dual drainage are:

1) Truck handlers can stand close to the truck when loading without having water drip on their feet.
2) Goods are *laid* in the truck, not tossed at arm's length.
3) Health conditions are greatly improved.

With the addition of simple guards, drain truck may be rapidly transported by fork lift trucks.

Send for full details.

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double-needle-bar fabrics; Simplex warp knitters; and milanese machines.

Particular attention is paid to the use of the point paper that is used in the understanding and design of particular knits, not only for each machine described but also for each type of fabric. From this basic information the warp-knit designer can start out on his own.

Improved Manufacturing Through Statistics

STATISTICAL QUALITY CONTROL, Second Edition, by Eugene L. Grant; McGraw-Hill Book Co., 330 West 42nd St., New York 36, N. Y.; cloth, 557 pages, $6.50.

This study is not only a textbook presenting the use of statistics to improve product quality and reduce the cost of inspection and seconds but also a practical working manual. Specific examples of results obtained in the textile industry are given, starting on pages 117, 260, 305, and 452.

Changes from the original edition include the following: (1) Chapters dealing with acceptance sampling by attributes have been expanded and largely rewritten; (2) the chapter on acceptance sampling by variables has been rewritten; (3) the treatment of the cost aspects of quality decisions has been expanded; (4) the number of problems (with answers to about 30% of them) has been more than doubled; and (5) master tables from "Military Standard 105A—Sampling Procedures and Tables for Inspection by Attributes" have been included in an appendix.

Chemists' Handbook In a New Edition

HANDBOOK OF CHEMISTRY, 8th Edition, by N. A. Lange; Handbook Publishers, Inc., Sandusky, Ohio; cloth, 2014 pages, $7.

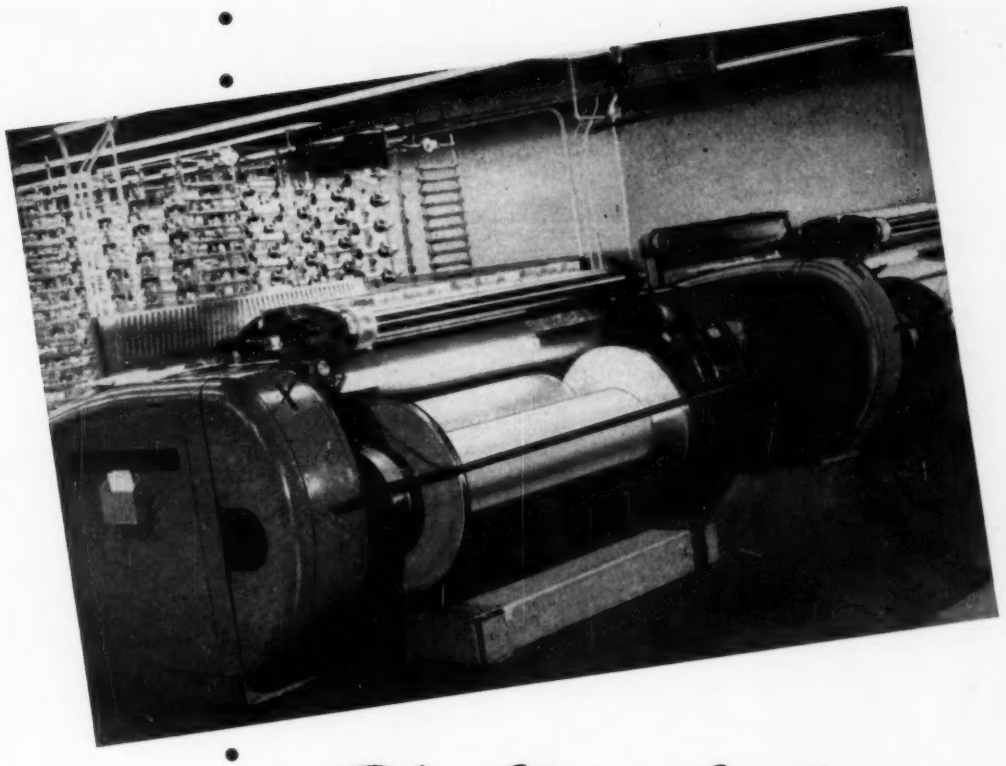
A thorough revision is said to have been made of all material used in the Seventh Edition of this chemist's standby, including hundreds of numerical-value changes throughout the book as well as the extension and rewriting of 26 tables.

A new table of interest to textile chemists included in this Eighth Edition is a list showing oxidation-reduction indicators used in titrimetry, as well as mixed indicators.

North Dakota Bids for a Mill

FEASIBILITY OF WOOL PROCESSING IN NORTH DAKOTA by Alex. C. Burr and Russell M. Hendrickson; North Dakota Research Foundation, Bismarck, N. D.; paper, 68 pages, no charge.

This report summarizes North Dakota's wool resources, types of wool processing now available, possible products to be made, and what the investment and operating costs would be of a new woolen-blanket or other heavy-fabric mill in the state. It concludes that a woolen mill



Speeds up to 1000 yards per minute.

The New Cocker Super High Speed Spindle Driven Warper

This picture shows two of a battery of six Cocker SD-49 High Speed Warpers operating in the plant of a large synthetic fibre manufacturer in Virginia.

These machines are adaptable for the finest denier yarn, heavy tire cord yarn, cottons, spuns, and other fibers. They will handle section beams with flanges up to 36 inches diameter.

Write, wire, or call for additional information.

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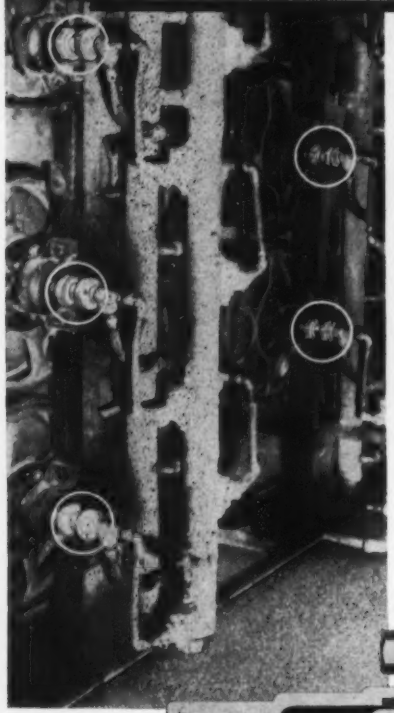
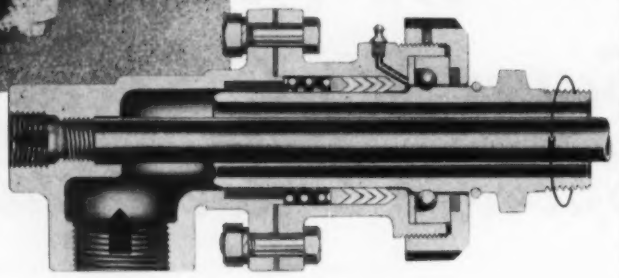


Says CHIEF ENGINEER in this Southern Mill

Operating engineers throughout the country are reporting the benefits they receive from Barco's new *improved* Type IBR Revolving Joints. These are benefits that come from the *correctness* of Barco's design. There is minimum increase in torque (friction) under increased steam pressure — thanks to Barco's exclusive "CTR" V-type seal rings and ball bearings. Also note the wide spacing between bearings which holds bearing loads and wear to a minimum.

Barco builds a complete line of standard revolving joints in sizes ranging from ½" to 2" and special in sizes to 5". Pressures to 250 psi, steam, or 1000 psi, hydraulic. Speeds to 2500 rpm.



This photograph shows Type IBR Barco Joints installed on a range of 12 dry cans in a prominent southern textile mill.

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- Free-Floating, Low Torque Installations.
- Ability to Withstand Vibration and Hard Usage.
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For information about Barco Revolving Joints, send for Bulletin 300. *Barco Engineers are at your service; ask for recommendations.* BARCO MANUFACTURING CO., 1834C Winnemac Ave., Chicago 40, Ill. In Canada: The Holden Co., Ltd.

BARCO *Revolving* JOINTS

For Textile Machine Dryers, Slashers, Dry Cans, Sanforizers

using 1- to 3-million lb. of grease wool a year is feasible for North Dakota.

The estimated investment of such a mill is $1,312,000 for a 3-set-card and a 16-W3-automatic-loom unit, with scouring and napping equipment. Estimated labor requirement is given as 66 employees on a two-shift basis. Over-all annual expenditures would be about $2,000,000—with $225,000 going into wages.

No end-product market analysis is included in the report, but a listing of possible specific machinery to be used in the mill is enlightening. Machinery cost would be almost $500,000 and power requirements just under 350 hp.

Color Specifications Internationally Systematized

THE C.I.E. INTERNATIONAL COLOR SYSTEM EXPLAINED by G. J. Chamberlin; Curry & Paxton, Inc., 101 Park Ave., New York 17, N. Y.; paper, 34 pages, $1.

For students interested in the mechanics of color, this booklet will be a welcome addition to the reference shelf. It is a simplified explanation of the International System for the description of color, written for the non-technical colorist, and points out the value of color specifications in industry.

Round Table

(*Continued from* page 163)

little constructive research has been done on this problem. It offers an important field for skilled and thorough research workers. The benefits derived from their findings could result in a direct money saving to many mills without sacrificing any quality of the card product.

The practical need of fiber-length control of rejected waste is clearly shown by the fiber analysis recently made of typical card-flat waste from a well-known mill. The following is a brief summary of this analysis:

Stock, 1 to 1⅛ in. cotton, Middling to Strict Low Middling

Flat strips taken out	3.2 %
Trash in flat strips	26 %
Good fiber in flat strips	74 %
Mean length of good fiber	1.02 in.

It is generally true that little attention is given in most mills to this matter of good fiber contained in the waste. If the total waste removed does not exceed the standard percentage, there is little concern about the fiber-length value of the waste. This attitude holds true for both cards and combers.

Combers, however, do offer a fiber-length selectivity that a cotton card lacks. Fiber-length analyses of comber noils will often reveal that full advantage is not taken of this selectivity. Adjustments and timings can be made to reduce the amount of long fiber in the comber noils.

The flat-strip-waste analysis shows that to remove 26% of undesirable trash it was

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Selapon Gel (SODIUM OLEYL METHYL TAURIDE) has an extraordinary versatility in the processing of textile fibers. Here are some of its uses and characteristics:

PRIMARILY A POWERFUL DETERGENT—stable to acids, alkalies, and hard water.

DOESN'T PRECIPITATE in presence of metal salts. It is unaffected by bleaching powders, peroxide, or hydrochlorite.

WETTING-OUT AGENT for use in dyeing.

USED ON ALL FIBERS—It can be employed with all natural and synthetic fibers.

UNPARALLELED for use in bleaching, dyeing, and finishing of rayons, acetates or nylons.

EXCELLENT RESULTS IN ACID MILLING—for both the hat industry and wool processing in all stages of the procedure.

Additional information and samples of Selapon Gel will be supplied on request.

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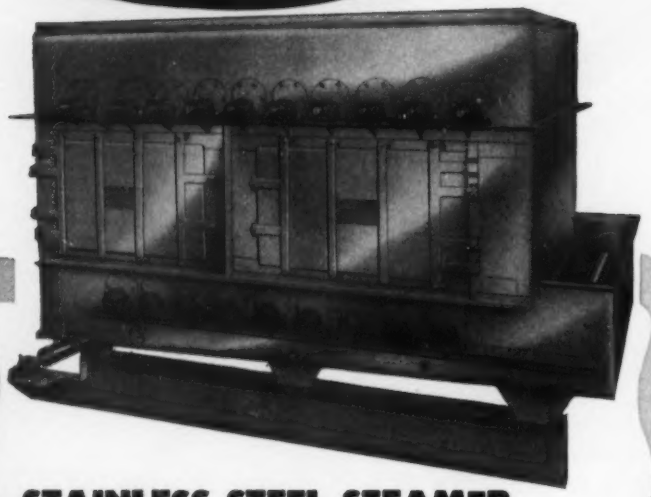

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also necessary to take out 74% of good spinnable fiber. The flat strips have a resale value, but resale value is only a fractional part of the cost of the cotton. The cost of collecting, baling, and shipping the waste must also be considered.

One mill reports that experiments on various flat, plate, and doffer settings and flat speeds show flat strips reduced to 2.1%. (Standard is 3.0%.) Waste analysis gave 41% trash and 59% good fiber. Nep count of card web was 26 per 100 sq. in. Yarn appearance was equal to B and B + on the 30s warp yarn.

The total trash removed remains almost unchanged but the total waste removed is reduced due to the retention of a greater amount of good fiber in the web.

It is estimated that with a card product of 10 lb. per hr. operating three 40-hr. shifts, this reduction in flat strips could result in a net saving of almost $2 per card per week running on 33¢ cotton.

The need for some research work on this problem is very evident. I should like to see it get the same intelligent, thorough treatment as that given to the nep problem in the recent nep report.

OLD SUPER

Lawrence, Mass.

Ardil

(*Continued from page 125*)

8 Will Ardil take any treatment normally given to woolen cloth? Broadly speaking, Ardil-wool blended fabrics can be finished in very much the same manner as all-wool fabrics, and can, in particular, be carbonized and napped like wool. However, with cloths containing Ardil fiber, less processing is required to achieve the same result as with wool.

9 What are the possible characteristics to be expected from Ardil in blends? Ardil-wool mixtures will be made into worsteds, woolens, hosiery, blankets, felts, carpets, and hats. Ardil-wool blends are practically indistinguishable from all-wool products. When used with wool in tweeds and napped fabrics, the Ardil fiber makes the cloth softer. It gives the effect obtained by using a finer quality of wool. With cotton, viscose, and other manufactured fibres, Ardil imparts a hand and warmth similar to a wool fabric.

10 What percentages of Ardil fiber and wool are recommended? They will vary according to the use, the method of spinning and weaving, and so on. Manufacturers are advised to start with about 30% Ardil fiber and not to exceed 50%.

11 How does shrinkage affect an Ardil-wool mixture? Shrinkage depends on the method of making the

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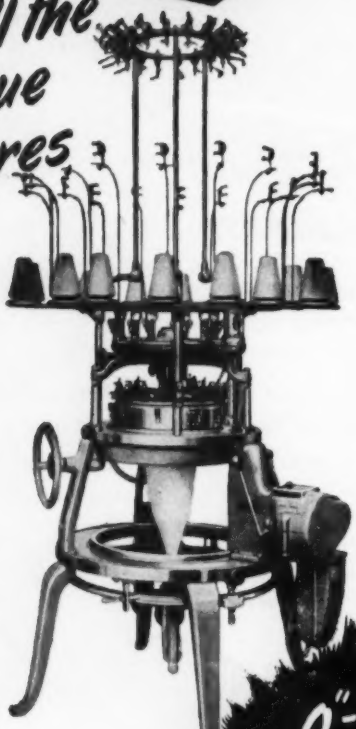

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fabric and the percentage of Ardil, which alone does not shrink. Satisfactory cloths have been made containing up to 50% Ardil fiber. They behaved similarly to all-wool in the various dyeing and finishing processes. Knitted fabrics have likewise behaved satisfactorily. The conditions of treatment must be stated. In the fulling process, for example, an Ardil-wool mixture fulls more quickly than all-wool fabrics.

12 **Does Ardil tend to felt like wool?** No. Being a smooth fiber, it has no felting properties as such but may enhance the felting of wool as a result of lubrication under heat and pressure.

13 **What are the special characteristics of Ardil-cotton and Ardil-rayon blends?** The addition of Ardil completely changes the character of the cloths produced. Ardil fiber improves the hand in one way, making the cloth warmer and softer. In addition, the cloth does not crease so easily and has improved draping qualities.

14 **What type of dyestuffs can be used on Ardil?** Any dyestuffs suitable for wool are also, in general, suitable for Ardil, though some modification may be needed in the method of application. Ardil-viscose and Ardil-cotton blended fabrics can, with suitable dyestuffs, also be dyed to solid shades.

15 **Is Ardil fiber flammable?** Ardil is nonflammable to the same extent as wool, and the fire risk is the same for both.

16 **Can Ardil fiber be used on warp-knitting machines, circular-knitting machines, or looms without adjstment?** Adjustments will be required.

17 **Can fabrics containing Ardil fiber be piece-dyed?** Yes.

18 **Does Ardil fiber dye fast?** Yes, the same as for wool, but again certain provisions are necessary.

19 **Is Ardil crease-resistant?** Fabrics containing Ardil fiber tend to crease to the same degree as other types, but the creases are said to disappear more readily.

20 **Is Ardil attractive to moths, or does it improve moth-resistance in blends?** Ardil is not attacked by the moth larvae. The moth can pick out wool in an Ardil-wool blend, however.

(*Continued on page 228*)

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Fielden INSTRUMENTS AND CONTROLS

FIELDEN MOISTURE CONTROLS for Slashers Prevent Set Marks and Excessive Loom Shedding

Excessive moisture in sized warps makes the yarn more ductile during weaving. Increased ductility robs warp ends of their ability to recover from elongation induced by strain caused when the harness is raised during loom stops. Set marks are the inevitable result.

Overdrying, on the other hand, leaves the size and surface fibres brittle. More force is required at the split rods to separate ends. Loss of overbaked size coating and surface fibres results. Further shedding of size and fibres occur on contact with drop wires, heddles and reeds at the loom, since baked warp ends have lost their ability to return to their original shape.

CONTROLS MOISTURE WITHIN 1%.

Correct these defects by installing on your slashers the Fielden Drimeter with Automatic Moisture Control. It will bring the warps off your slashers with the exact moisture content required for better weaving.

The operator simply sets the instrument for the moisture content desired. The Drimeter and automatic control regulates the slasher to run at the speed that will maintain the desired moisture content within 1%. Because the Fielden Drimeter measures moisture by a change in electrical capacitance it is unaffected by pH and is accurate on all warps, including acetates and warp dyed yarn.

SAVES ON AIR CONDITIONING AND SIZING, TOO.

Many mills run 15 to 20% higher humidities in their loom sheds than are required, trying to compensate for the excessive drying of warps during sizing.

When warps contain the proper moisture content as they come off the slasher, the relative humidity in the weave shed can be reduced by 15 to 20%! In addition, by not overdrying warps, slasher speed can be increased by as much as 50%.

For further details about the economy and quality effects of Fielden Drimeter and Automatic Moisture Controls:

Write for illustrated descriptive literature and list of users.

Fielden INSTRUMENT DIVISION
ROBERTSHAW-FULTON CONTROLS CO.
2920 North 4th Street • Philadelphia, Pa.

(Continued from page 226)

21 How do Ardil blends wash? Up to 50% Ardil-fiber blends wash satisfactorily.

22 What precautions should be taken in dyeing Ardil? Ardil contains up to 4% sulfuric acid. This acid should be neutralized and removed by scouring in mild alkali to provide pH control and control of the dyeing rate. At temperatures above 150° F., Ardil releases some free formaldehyde in aqueous baths. Dyestuffs sensitive to formaldehyde should not be used unless the scour is given. In chromate and chrome-mordant dyeing, the chrome exerts a nullifying effect on formaldehyde.

23 How does Ardil handle in wet processing? The relative low wet strength of the fiber makes it unsuitable for use in 100% Ardil fabrics. In blends with wool, Ardil tends to promote felting. Care should be exercised to keep felting action to a minimum until experience has shown what the particular blend can stand.

Doffer-Cost Calculations

(Continued from page 131)

How To Get the Constants

Frame lengths and bobbin sizes are usually uniform in a department, and changes in yarn number usually are not great enough to affect run-of-the-mill bobbin weights seriously. So you can simplify calculations by using random bobbins from each yarn number to get a mean yarn weight to use in the doffing-rate formula.

Elimate the front-roll speed and the yarn number from the doffing-rate formula and you have the data to get a doffing-rate constant.

$$\text{Rate constant} = \frac{1\times3.1416\times300\times60\times92}{36\times840\times0.16\times100}$$

$$\text{Rate constant} = 10.75$$

Now:

$$\text{Doffing rate} = \frac{\text{front-roll speed}\times\text{constant}}{\text{yarn number}}$$

Example:

Yarn number = 26s

Front-roll speed = 125 rpm.

$$\text{Doffing rate} = \frac{125\times10.75}{26}$$

$$\text{Doffing rate} = 51.7$$

Doffer's Cost per Hank

A constant for doffer's cost per hank further simplifies the calculation of

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GEARS

SHUTTLES

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Saves Weight, weighs half as much as aluminum. **Resists Compression,** pound for pound greater than steel. **Resists Impact,** absorbs and withstands severe shock. **Withstands Vibration,** cushions repeated shock without effect. **Insulates** like mica but greater flexibility. **Resists Corrosion,** not affected by acids, oils, fumes. **Resists Heat and Cold** from –112°F to 212°F. **Resists Moisture,** in fact, water is its best lubricant. **Wears Slowly, Evenly,** in many cases more slowly than metal. **Reduces Noise,** absorbs vibrations, deadens noise. **Fabricates Easily,** machined or punched with ordinary tools.

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Laminated MICARTA includes standard structural shapes: plates, sheets, angles, channels, rods, tubes and zees. Occasionally this class includes simple molded shapes. **Molded MICARTA** is the choice for complicated shapes, large production quantities of either simple or complicated shapes, or for certain properties better obtainable in form molding.

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MICARTA is a tough and resilient basic material that welcomes comparison with other basic materials. This versatile plastic outlasts wood and metal in many punishing applications. Investigate MICARTA and you'll find it the economical solution to tough production problems.

for more information on how MICARTA can help solve your production problems, and give you advantages no metal can give you, please fill out the coupon below. A MICARTA representative will then call on you personally.

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piece-work rates. The doffing rate per frame and the expected hanks per hour per frame are the two variables in figuring the doffer's cost per hank. Eliminate these two factors from the cost formula and you can get a cost constant.

$$\text{Cost constant} = \frac{1\times3.1416\times60\times800}{36\times840\times100}$$

$$\text{Cost constant} = 4.586$$

Now:

$$\text{Doffer's cost per hank} = \frac{\text{pay rate}\times\text{doffing rate}}{\text{front-roll speed}\times\text{cost constant}}$$

Now Substitute Rate Constant

The formula for doffer's cost per hank can be further simplified by substituting the short formula for the doffing rate:

$$\text{Doffing rate} = \frac{\text{front-roll speed}\times\text{rate constant}}{\text{yarn number}}$$

Thus:

$$\text{Doffer's cost per hank} = \frac{\text{pay rate}\times\text{doffing rate}}{\text{front-roll speed}\times\text{cost constant}}$$

$$\text{Doffer's cost per hank} = \frac{\text{pay rate}\times\dfrac{\text{front-roll speed}\times\text{rate constant}}{\text{yarn number}}}{\text{front-roll speed}\times\text{cost constant}}$$

Simplified:

$$\text{Doffer's cost per hank} = \frac{\text{pay rate}\times\text{rate constant}}{\text{yarn number}\times\text{cost constant}}$$

Now Combine the Constants

The doffer's basic pay scale stays the same over long periods, and the doffing-rate constant and doffer's-cost constant do not change unless a machine change such as ring diameter or bobbin diameter is made. The final simplification is to eliminate the yarn number from the cost formula to get the most useful constant.

$$C = \frac{\text{pay rate}\times\text{rate constant}}{\text{cost constant}}$$

$$C = \frac{1.00\times10.75}{4.586}$$

$$C = 2.344$$

Now the only variable is the yarn number; so the doffer's cost per frame hank can be found by dividing the yarn number into the one constant.

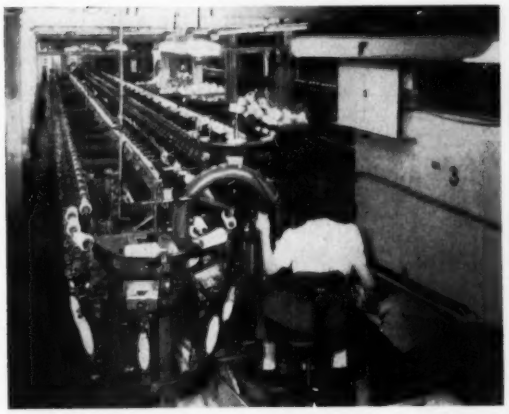
Example:

$$\text{Yarn number} = 32s$$

$$\text{Cost per frame hank} = \frac{C}{\text{yarn number}} = \frac{\$2.344}{32} = \$0.0734 \text{ per frame hank}$$

Complete Automatic Winding Systems for Rewound Filling

to take advantage of large package spinning, more yarn on filling bobbins, more uniform bunches, better weaving bobbins, and inspected yarn, all of which go to make a better fabric.

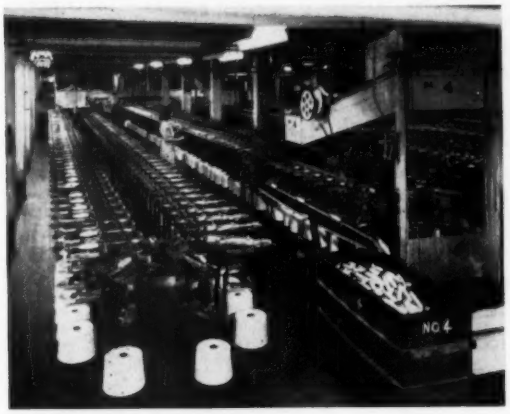


Abbott Traveling Spindle Package Winders

Automatic Cone or Tube Winders for warping, dyeing, twisting, quilling, sales.

Can be equipped with any one of a variety of slub catchers and inspection devices.

Production up to 1000 bobbins per hour per operator.



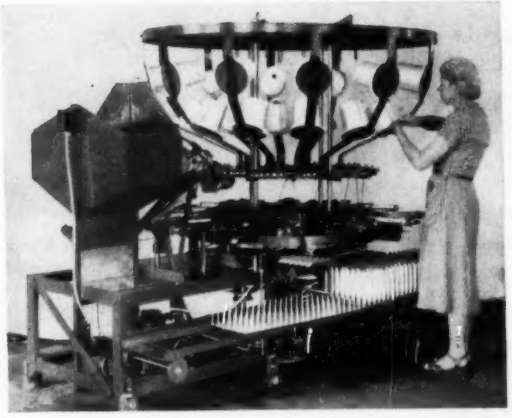
Abbott Traveling Spindle Automatic Quillers

For winding cotton, spun rayon, worsted, etc., equipped to doff automatically into baskets, or stack automatically into boxes.

For rewinding woolen yarn from mule and ring frames.

For winding filament rayon and nylon, etc., with automatic pinboard attachment or wide belt inspection conveyor.

Production up to 2000 bobbins per hour per operator.



Abbott Fully Automatic Radial Quiller

This new quiller has been developed to bring complete automatic quilling to highly diversified mills and the small mills.

For winding cotton, spun rayon, filament rayon, worsted, wool, etc.

Can be arranged to deliver bobbins to Pinboard Attachment, or into baskets, or onto wide belt conveyor.

Production up to 2000 bobbins per hour per operator.

ABBOTT MACHINE CO., INC.

WILTON, NEW HAMPSHIRE

SOUTHERN SALES AND SERVICE: GREENVILLE, S. C.

Roof-truss design and fabrication by Timber Structures, Inc.

How American Textile protects their dye house trusses and roof-deck from rot and decay

• In 1951, when American Textile Processing Co., Inc. planned their new dye house in Paterson, New Jersey, they designed one of the most modern plants in the industry. The roof of a dye house calls for the insulating qualities of wood . . . but the constant presence of acid vapor, steam and condensate makes for a serious maintenance problem. American Textile Processing solved this problem by specifying that all wood used in the trusses and roof decking be pressure-treated Wolmanized* lumber.

Wolmanized lumber is clean, odorless, paintable and non-leaching. The ability of Wolman preservative salts to prevent decay or insect attack makes any lumber last longer in the presence of moisture and termites. There are Wolman preservative treatment plants in all parts of the country. For further information, write:

American Lumber & Treating Company

General Offices: 1601 McCormick Bldg. • Chicago 4, Illinois

Offices: Little Rock, Ark. • Portland, Ore. • Boston • Los Angeles San Francisco • Baltimore • New York • Jacksonville, Fla.

See our CATALOG in SWEET'S FILE

Wolmanized PRESSURE TREATED **Lumber**

*Reg. U. S. Pat. Off.

Exploring the Community

(*Continued from page 145*)

dereliction of many American voters, the drifters, the excuses, the fact that in 1948 only half the nation's eligible-age voters went to the polls. They described historic single votes that have changed the course of the nation's history. And they emphasized the stake the American people in big and little communities have in their local and national elections.

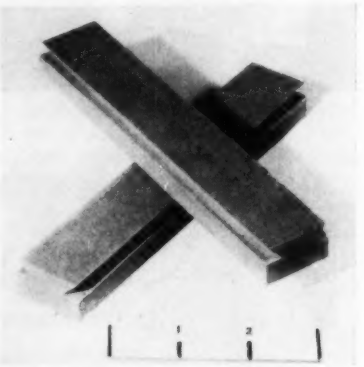
Wherever forums were held, voter registration increased. Now that the election of 1952 is history, it is easy to see why this company's community efforts on matters of national importance are significant.

There are always problems that should be analyzed and presented to the public—your public, the people who live in your mill town. Why not get in touch with officials of Alabama Mills, Inc., and try their way of community seminar planning for a better future for America?

Textile Equipment News

(*Continued from page 158*)

Laminated-Plastic Vibration Blocks Outlast Wood 60 Times



INITIAL COST of these new vibrator blocks is six to eight times that of conventional wooden blocks. But by lasting much longer they save on block and loom-parts replacement and on loom maintenance.

A new laminated-plastic vibration block for Draper looms has been successfully subjected to mill tests and is now available from Synthane Corp., Oaks, Pa. The tests, conducted for several weeks at Dixie Mills, LaGrange, Ga., for the Lantuck Div., West Point Mfg. Co., indicated that the new block would last 60 times as long as

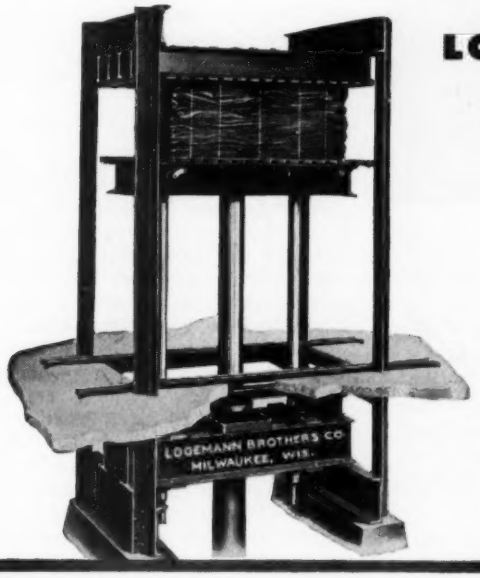
For more information, write direct or use Reader Service post card.

MAKE YOUR BALING A *Profitable* OPERATION *with a* LOGEMANN BALER

Tell Us Your Baling Problems

THAT'S the best way to get the right answers to low-cost time-saving baling. During our sixty years of building balers for the textile industry we've solved many a baling problem for factory owners. Our engineers know how to make baling operations pay their own way in time and labor-savings, in speedier, more reliable handling of bales, in lower maintenance costs. Many Logemann balers have been in profitable operation since the turn of the century—evidence of the ruggedness, durability, and long service life of Logemann baling presses.

In the interest of better baling operations in your factory, find out what Logemann balers can do for you. Tell us what your specific problem is. We'll gladly show you how it can be answered in terms of better bales at lower costs and make a specific recommendation based on your requirements. Write for information today.



LOGEMANN BALING PRESSES

We have furnished many deep box Hydraulic Balers to the synthetic fiber industry where controlled bale weights and densities are most important. In every instance, Logemann Deep Box Hydraulic Balers have proved highly satisfactory.

Open balers for finished goods may be hydraulic or power-driven. Give platen dimensions required, maximum height of pile to be compressed, number of bales per hour, when requesting information on open balers.

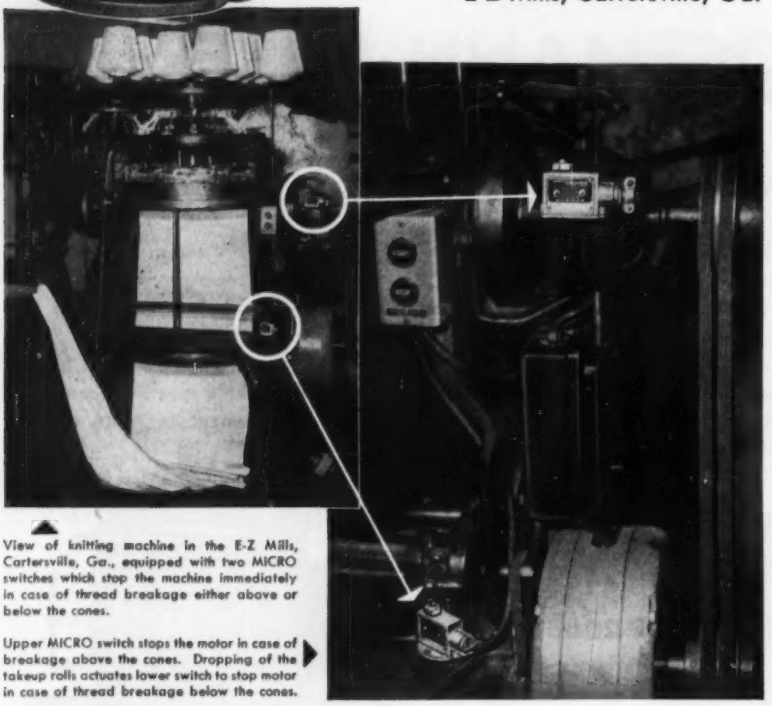
Box balers for waste may be obtained in either the hydraulic or power-driven type. Mention the kind of waste to be baled, how much in how many hours, the preferred size or weight of bale when inquiring about box balers.

LOGEMANN BROTHERS CO.

3100 West Burleigh Street • • • Milwaukee 10, Wisconsin

"These two MICRO switches will save us $50 a year per knitting machine"

R. E. Miller, Superintendent
E-Z Mills, Cartersville, Ga.



View of knitting machine in the E-Z Mills, Cartersville, Ga., equipped with two MICRO switches which stop the machine immediately in case of thread breakage either above or below the cones.

Upper MICRO switch stops the motor in case of breakage above the cones. Dropping of the takeup rolls actuates lower switch to stop motor in case of thread breakage below the cones.

TWO MICRO precision switches are being installed on each of the 250 knitting machines in the E-Z Mills at Cartersville, Georgia, for the protection of the expensive needle beds. R. E. Miller, plant superintendent, estimates this automatic protection to be worth at least $50 per machine in a year.

The upper switch replaces a mechanical stop motion which had proved not too dependable in stopping the motor in case of a thread breakage above the cones. A break in the thread below the cones causes a drop in the takeup rolls which actuates the lower MICRO switch and stops the motor immediately. It takes the place of a chain-operated mechanical stop which often had failed. Hundreds of new applications for these small, dependable precise-acting switches are being found daily in the textile industry. They are easily mounted and fully adaptable to the many requirements of the industry. Their rugged housings and sealed operating parts permit long-life operation in conditions where extreme dust or lint are present.

Textile engineers are invited to consult with their nearest MICRO distributor for help in the selection of switches best suited to their specific needs. Further information is also available from your nearest MICRO branch office.

MICRO MAKERS OF PRECISION SWITCHES
FREEPORT, ILLINOIS

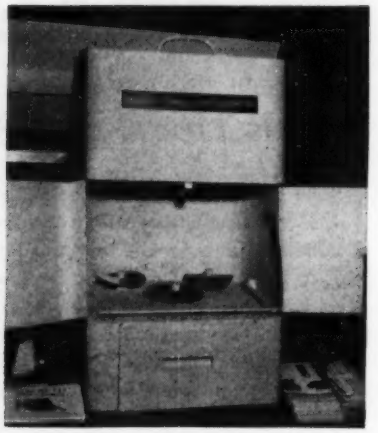
A DIVISION OF
MINNEAPOLIS-HONEYWELL REGULATOR COMPANY

conventioned wooden vibrator blocks.

The new block is made of L-RF laminate with a filler of the non-woven random cotton fiber mat known as Lantuck. Its durability eliminates the damage to loom parts, especially the whiproll cam and followers, that often occurs when vibrator blocks give way.

The blocks are priced six to eight times the cost of wooden ones.

Color-Matching Device Gives a Reproducible Record



VARI-COLORED DISKS spinning around concentrically in various combinations and percentages that can be reproduced at any time make this color-matching device easy and sure in operation.

For textile colorists who do not have enough background in physics to properly interpret measurements made by ordinary color-measuring instruments, a new colored-disk device for color-matching work has been developed by and is available from Macbeth Corp., Box 950, Newburgh, N. Y.

The practical application of the instrument, called the Macbeth-Munsell Disk Colorimeter, lies in its use for specifying standard colors in terms of an established color system. These colors are reproducible and can be expressed in a universal color language that can be distributed among as many persons as desired and reproduced at any time by any of them.

The instrument is used by obtaining Munsell paper disks of designated hues, values, and chromas, interleaved in various combinations. Several disks, when mounted with only a portion of each disk exposed, blend into a particular color when the entire disk is rotated at a high speed.

The resulting color is varied by adjusting the amounts of each of the interleaved disks until the textile sample has been matched.

Once the color has been matched,

There's a growing preference for ROLLWAY BEARINGS ...and with good reason!

Unwavering right-line rotation—free of skew, side-shock and end-rub—greatly extends the life expectancy of a Rollway Roller Bearing. Add to longer life the definite gains in smoother operation and lower maintenance costs and it's understandable why, today, demand for Rollways has reached a new peak.

Our increased facilities are expanding Rollway output as fast as possible. We are continuing to improve the balance between supply and demand, so that service to both established and new customers will be geared to their quantity requirements . . . another reason why bearing users can confidently specify "The bearings that *roll* right because they're *made* right."

RIGHT ANGLE

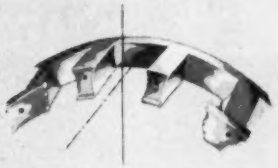
ROLLER ENDS, precisely square to avoid end-rub, oscillation and side-shock.

RIGHT ANGLE

BEARING SURFACES with parallelism that results in unwavering right-line rolling.

RIGHT ANGLE

SEPARATOR SLOTS accurately machined to prevent roller skew, slide and uneven wear.



Our complete engineering and metallurgical services will gladly work with you on your problems. Simply write or wire any sales office. No cost. No obligation.

Rollway Bearing replacements are available through authorized bearing distributors in principal cities. Consult your classified 'phone directory.

ROLLWAY BEARING CO., INC.
SYRACUSE 4, N. Y.

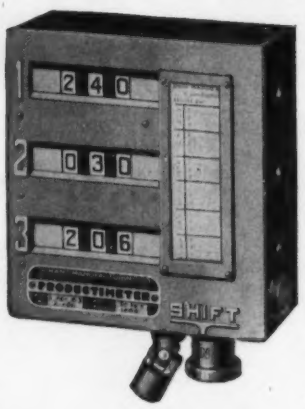
SALES OFFICES

Syracuse	Chicago
Cleveland	Pittsburgh
Houston	Detroit
Boston	Los Angeles
Philadelphia	Toronto

ROLLWAY BEARINGS

Complete Line of Radial and Thrust Cylindrical Roller Bearings

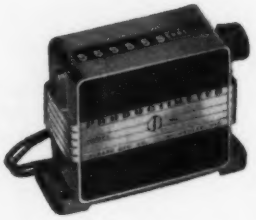
PRODUCTIMETER *Progress*



PICK COUNTER

PICK COUNTER (Model 4-PC-R-3) — Introduction of this improved model provided better readability and easier operation. The heavy drive construction assures trouble-free performance. It is tamper proof, dust proof and rust proof.

"Y" ELECTRIC



"Y" ELECTRIC — High speed, accurate, with maximum readability. Totally enclosed in compact new type case for protection against dust and moisture. Operates accurately over wide current fluctuations.

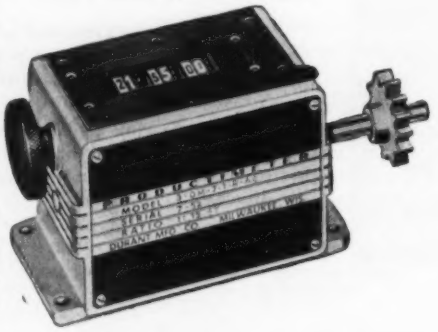
New Finish on Entire Line!

Attractive Alaska Gray and Seal Brown Combination.

DURANT DOFFMETER

The Durant Doffmeter is a compact, predetermined counter designed to cut off the loom or signal when the preset number of yards is reached. Eliminates cut marks and waste ends by assuring uniform yardage . . . simplifies inventory control.

Present day high costs make the installation of Durant Doffmeters on every loom a practical money saving investment. Plan now . . . write or contact us for detailed information.



DURANT MANUFACTURING COMPANY

1931 N. BUFFUM ST. MILWAUKEE 1, WIS.

P. O. BOX 3598 — HB-31 GREENVILLE, S. C.

131 ORANGE ST. PROVIDENCE 3, R. I.

Representatives in Principal Cities

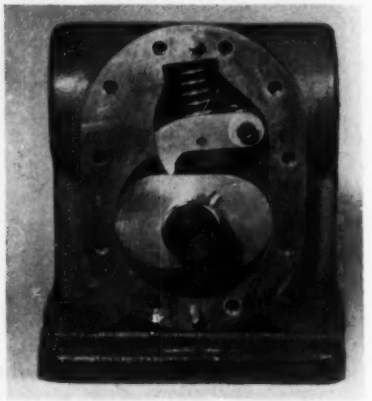
Send for Catalog No. 501

PRODUCTIMETERS SINCE 1879 *Count Everything*

the color can be expressed in the terms of the Munsell notation system by evaluating on a graduated dial the percentages of each disk exposed in making the match.

To eliminate errors that might arise from different kinds of weaves, textures, or finishes, a small disk can be cut from the textile material to be matched and placed concentrically over the larger Munsell color disks. The effects of differing types of fabrics and finishes are thus minimized and in many cases eliminated by such simultaneous spinning.

Constant-Delivery Pump For Wide Range of Viscosities



POSITIVE DISPLACEMENT of liquids is the advantage of the Rotorarm pump. The rotor turns counterclockwise and creates a suction behind it as the spring-weighted arm above it forms a constant seal. Discharge pressure is constant.

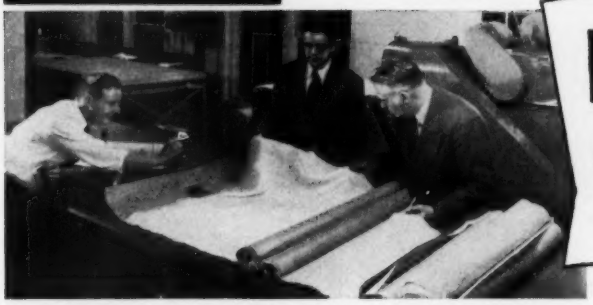
A long-wearing, nonpulsating pump that can handle a wide range of viscosities has been developed by the Textile Pump Div., Hinckley Corp., 264 Arlington St., Watertown 72, Mass. Called the Rotorarm pump, CR-33, its primary textile use is in warp-size and dye delivery.

The nonaerating, even flow obtainable with the rotating-arm principle incorporated in the pump makes for the delivery of a larger volume than is possible with conventional pumps of its size.

Stainless-steel or corrosion-resistant elements are provided in the pump. The pump comes complete with underframe and outboard bearing for easy mounting on any base and in any position. The bronze-brushing outboard bearing is designed for any type of drive gear, flat-belt, V-belt, or direct. Piping connections are easy.

Included in the specifications are the following: displacement, 0 to 60 g.p.m.; speed 400 to 1,750 rpm.; discharge pressure, up to 100 psi.; vac-

WASTE FIBERS



Customers examining random web made from their own fibers.

RANDOM WEBS

MADE FROM YOUR FIBERS TO SEE...TEST...PRODUCE

STAPLE FIBERS

Part of the hundreds of different fibers and fiber blends sent in by prospects.

LAMINATED FIBERS

Customer's sample web coming off the delivery apron of the Rando Webber.

SYNTHETIC FIBERS

Critical examination of random web for texture, quality and uniformity.

You can develop new products from random webs made with your waste or staple fibers, and so it will pay you to contact us. Twenty pounds of stock with specifications as to blend, weight, and quality of web desired will give you ample material with which to experiment.

A FEW PRODUCTS FROM RANDO-FEEDER · RANDO-WEBBER

- **Heavy mats (resin bonded or punched felt-type)**
  - a) floor backing
  - b) rug cushion and backing
  - c) insulation
- **Felt (pressed type)**
  - a) automotive grade
  - b) industrial grade
  - c) clothing accessory items
- **Industrial Non-Woven Fabrics**
  - a) laminate reinforcements
  - b) reinforcements for molded plastic articles
  - c) base for coated fabrics
  - d) tapes
  - e) filters
- **Wadding**
  - a) automotive grade
  - b) upholstery backing
  - c) packing materials
  - d) casket linings
  - e) clothing interlining
  - f) quilting interlining
  - g) surgical goods
- **Household Non-Woven Fabrics**
  - a) tapes
  - b) disposable household items
  - c) surgical items
  - d) disposable personal items

WRITE for new Bulletin No. 102 suggesting products and ways to handle webs.

TEXTILE DIVISION

CURLATOR

CORPORATION

EAST ROCHESTER, NEW YORK

on floors kept CLEAN, SMOOTH, SAFE with the

TENNANT FLOOR MAINTENANCE SYSTEM

To give a BIG boost to morale, here's the place to start—wood floors made bright, safe, and "sure-footed" by TENNANT *dry*-cleaning. You get rid of dangerous, slippery grime . . . make floors many times brighter . . . and keep floors in better shape than *ever* before, usually at less cost!

BRINGS FLOORS TO LIFE! With the mechanized, easy-to-use Tennant System you whisk off dingy, oily top fibers. Leaves wood smooth and bright.

MAKES FLOORS DIRT-RESISTANT. Sealing process hardens floor . . . makes it tough, durable, easy to keep clean.

DRY CLEANS, ELIMINATES SCRUBBING. Saves hours of tedious manual work . . . makes your floors cleaner, brighter, smoother than you'd believe possible!

FITTED TO YOUR SPECIAL NEEDS

The Tennant System for your mill will be individually selected, planned and arranged for your specific needs. Assures best results . . . saves you time and expense. ASK FOR A REPRESENTATIVE TO CALL. No obligation.

WRITE TODAY! *Send for complete details.*

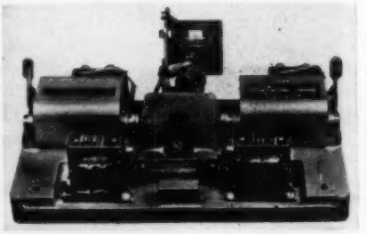
G. H. TENNANT CO.
2586 NORTH SECOND STREET
MINNEAPOLIS 11, MINNESOTA

The way to finer floors
TENNANT
Floor Maintenance System
ESTABLISHED 1870
THERE IS A TENNANT MAN IN YOUR VICINITY!

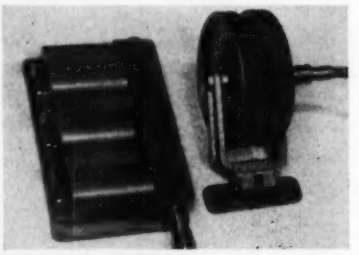
THE TENNANT SYSTEM **ENDS SCRUBBING** and can be used throughout your mill

uum, up to 28 in. mercury; weight (including underframe), 37½ lb.; suction and discharge pipe size, 1½ in.; and drive-shaft diameter, 1⅛ in.

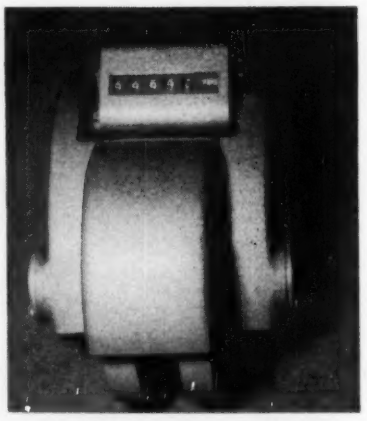
New Measuring Counters Have Increased Versatility



BATCHING UNIT (cover removed) consists of alternate adding and subtracting counters. At the end of each cycle a contact can be made or broken. The unit can be supplied with revolution, stroke, or magnetic movements.



TWO OF THESE THREE DIALS have a clutch lever that works with the other. So one counter can be put into gear as the other comes out of gear, simultaneously and while the machine is running. The third counter gives the grand total.



TWIN-WHEEL COUNTER is designed for use with piece goods. It has a counter-balanced mounting to permit easy lifting out of action. The counter shaft is driven by a chain and sprocket drive. Measuring wheels are 18 in. in diameter.

Three measuring counters—a batching unit consisting of two counters, a triple-counter switch-over unit, and a

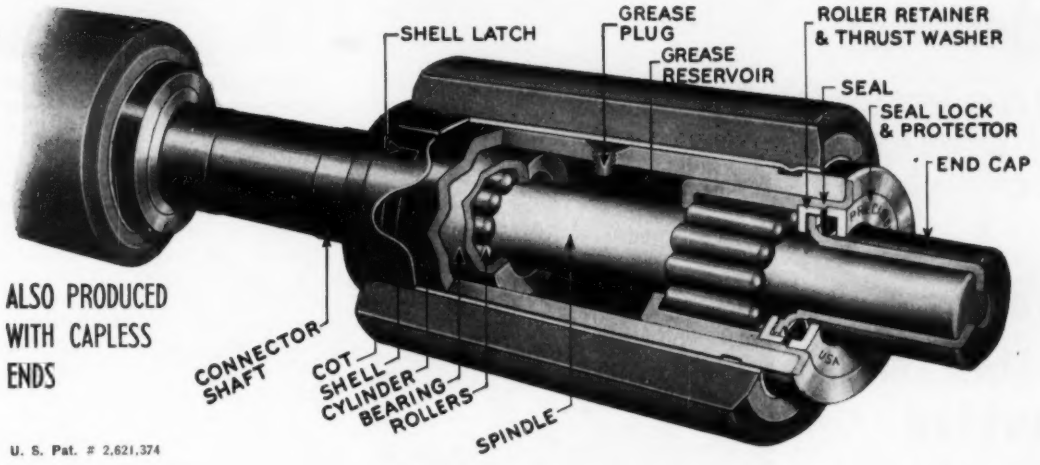
ANNOUNCING MASS PRODUCTION OF:

PRECISION ROLLS

5 YEARS IN DEVELOPMENT; 3 YEARS ON THE PROVING GROUND; 2 YEARS ON TOOLING FOR LOW COST PRODUCTION

"A Better Textile Top Roll — at a Self-Liquidating Price"

SOLD ONLY ON A PERPETUAL PARTICIPATING WARRANTY THAT JUSTIFIES YOUR INVESTMENT. NOT ONLY WILL IT IMPROVE THE QUALITY OF YOUR PRODUCT AND ELIMINATE YARN SPOILAGE FROM BLACK OIL, BUT THE COST WILL BE MORE THAN OFF-SET BY SAVINGS IN WEAR ON SADDLES AND CAP BARS, AND BY SAVINGS IN OIL AND LABOR.



U. S. Pat. # 2,621,374

THE GREASE IS SEALED IN; THE LINT IS SEALED OUT

Provision Has Been Made For Re-Greasing
At 5 Year Intervals—Without Dis-Assembly

MANUFACTURED IN ALL TYPES AND SIZES
FOR SPINNING AND ROVING
(with cots to your specifications)

By

COLE ENGINEERING CORPORATION
FOURTH AVE. AT THIRTY SECOND ST.
COLUMBUS, GEORGIA

Medley Manufacturing Co., Inc. (Sole Agents)
400 Thirty Second St.,
Columbus, Georgia

☐ Please send me, without cost or obligation, the complete PRECISION ROLLS program, including price and delivery schedules.

☐ Have your representative call

Name .....

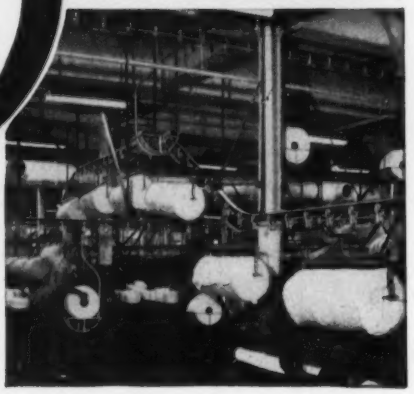
Firm .....

City & State .....

KENDALL MILLS... solves tough handling problem

Buschman
"UNIVERSAL"
CABLE
CONVEYORS

speed cotton mill's doubled capacity



Three Buschman "Universal" Cable Conveyors carry in-process cotton from one department to another in Oakland Plant of Kendall Mills, supplier to Bauer and Black, maker of famous Curity surgical gauze dressings.

Buschman Cable Conveyors, over 2400 ft. in length, smoothly handle high production of this enlarged modern mill. Standard stock units, ease of installation, lower initial cost, lower maintenance cost, small power requirements, time saving and floor-space saving features are reasons why "Universal" is in greater demand than ever, for handling light and medium weight loads.

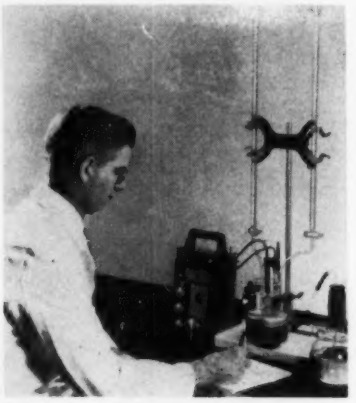
Write for Bulletin 41.

PRODUCE MORE ... FOR LESS on Buschman Conveyors

THE E. W. BUSCHMAN CO., INC.
Dept. J-2, Clifton & Spring Grove Avenues
Cincinnati 32, Ohio

twin-wheel measuring counter – are now available to American mills from Trumeter Co., 1265 Broadway, New York 1, N. Y.

Curve Assembly Makes Titrators of pH Meters



TITRATION ASSEMBLY that uses a portable battery-operated pH meter offers speed and ease in the obtaining of accurate titrations.

A "titration curve assembly" that uses a pH meter to assist chemists in setting up controls on any variety of samples has been made available by Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Pa. The shape of the various curves, plus the indicated end points, supply all the answers needed.

The assembly consists of a burette stand with burette holder, two burettes with curved delivering tips, an electrode support, a 250-ml. beaker, a new magnetic stirrer equipped with two stirring magnets – one polyethylene and one glass-enclosed – which operates on 115 v. 50 to 60 cycles a.c., and a standard pH meter.

Assemblies can be built around either a temperature-compensated direct-reading pH meter or a portable battery-powered pH meter.

Detachable Plastic Skewer Base Resists Roughing Up

A plastic skewer base has been developed for 8- to 11-in. card-room bobbins by Monticello Bobbin Co., Monticello, Ga. It measures 1 9/16 in. in diameter and can be screwed onto wooden skewer barrels whose bases were chipped or split. No change has to be made in conventional creel boards to take the plastic bases.

The screw has a left-hand thread so that base and skewer cannot become separated as stock is drawn off the bobbin.

The bases are strong, resilient, and

GREATER MILL SAVINGS

- ELIMINATES BOBBIN DAMAGE
- LOWERS LABOR COSTS
- REDUCES SECONDS IN CLOTH
- SIMPLE, FLEXIBLE—QUICKLY ADJUSTABLE
- HIGH PRODUCTION
- LOW CLEANING COST
- LOWER MAINTENANCE COSTS

WITH TERRELL'S MODERN TYPE L QUILL CLEANERS AND HANDLING EQUIPMENT

Efficient and versatile—Terrell's Type L Bobbin Cleaner has proved that its money-saving advantages apply to a wide variety of mill conditions.

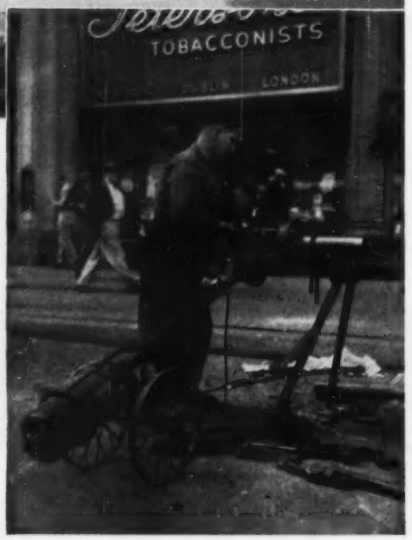
Originally used to remove continuous filament waste from automatic loom bobbins, the type L is now used for wool, worsted, spun rayon, and most all cotton yarns.

For some counts of cotton the Terrell Type K Cleaner is recommended.

Terrell field engineers are specialists in solving quill cleaning and handling problems. Call on them to recommend the equipment which will give greatest savings in your mill.

THE TERRELL MACHINE COMPANY, INC.

CHARLOTTE, N. C.



TOLEDO
THREADERS AND POWER DRIVES

Gear Up Production!

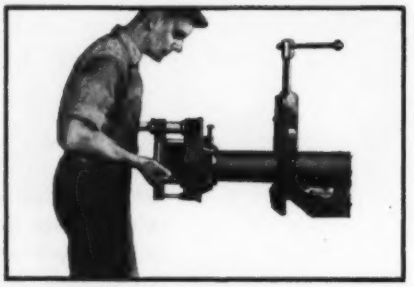
Sure enough—the street scene at right is really Broadway, N.Y.—where the mechanic is operating a Toledo Power Drive and No. 2 Geared Threader. This job of installing new 3" red brass for water service from the city main was handled by Water and Sewer Service Co.

Time was important on this job—as a trench was dug in the street and traffic had to detour.

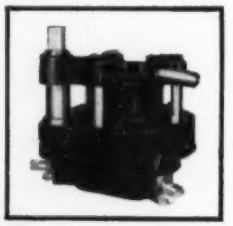
Time was saved by high-speed performance of the Toledo Power Drive operating Toledo geared tools! This also means *labor-saved* . . . and *money saved* for the contractor!

Wherever the job—in shop, plant or in the field—you can *speed up* pipe fitting and *reduce costs* with Toledo Tools! Precision-built . . . dependable. Order through your supply house. Write for catalog. The Toledo Pipe Threading Machine Co., Toledo, Ohio. New York Office: 165 Broadway, Room 1310.

Toledo Power Drive operating a Toledo No. 2 Geared Threader on 3" red brass for water service at 217 Broadway, New York City.



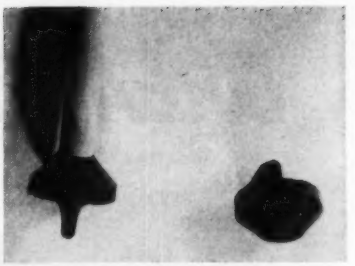
No. 2 geared adjustable threader, 2½" to 4" pipe, incl. *Lighter weight* than any other tool of this capacity!



No. 2BR Geared Adjustable, Threader, 2½" to 4" pipe, incl. New type 3-jaw pipe holder.

RELY ON THE 50 YEAR LEADER

TOLEDO PIPE TOOLS...
POWER DRIVES... POWER PIPE MACHINES



DURABILITY and free-running qualities of this plastic skewer base make it just the thing for reconditioning old card-room skewers.

hard enough to discourage any roughing up with a pocket knife. They are free running, last longer than wooden bases, and offer no maintenance problem.

Questions AND Answers

Three Methods Used To Select Bales for Testing

Technical Editor:

What are the current practices for selecting bales for cotton tests? (9623)

The three methods for selecting bales for cotton tests are random sampling, composite sampling, and "all bales used."

With random sampling, as high as 10% of the bales in some mills and as low as 1% in others are selected for testing.

With composite sampling, some mills take a small portion of cotton from each classing sample to form one laboratory sample to represent an entire lot. The various tests are then applied to this blended sample.

A few mills test every bale.

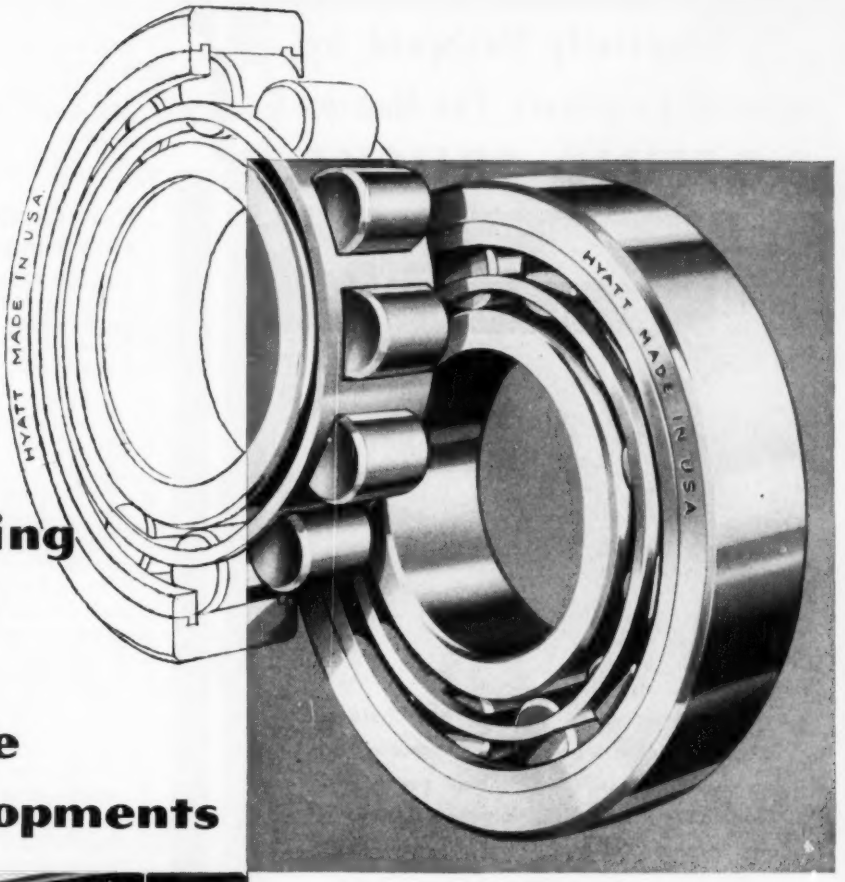
Use Paper Strip To Mark Length of Roving for Test

Technical Editor:

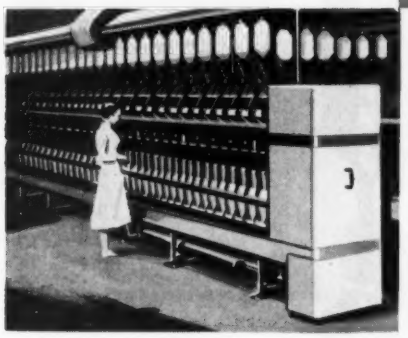
What's a good way to test roving on a wool card? (9621)

Take as many strips of kraft paper as you have jack spools on the card. Have them 6 in. wide and the width of the jack spool.

Insert the paper sideways, one into each running spool, one after another. Let run for about a minute, so that



Keeping pace with textile developments



Hyatt precision bearings

Throughout the textile industry, modern methods and Hyatt-equipped machinery are making possible the production of higher quality yarn and cloth at lower cost. Builders of looms and preparatory and finishing equipment know that by using Hyatt bearings they can offer the advantages of faster machine operations, reduced power costs and minimized lubrication problems. If Hyatts are not standard equipment on the machines you purchase, they can be had upon specification—or used for changeovers. For data about Hyatt bearing performance, write to Hyatt Bearings Division, General Motors Corporation, Harrison, N. J.

HYATT ROLLER BEARINGS

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you get about 50 to 60 yd. of roving.

Doff the spools in the same order and at the same speed the paper was inserted. You now have the same length of roving from the outside of each spool to the paper inside.

Cut through the roving down to the paper and weigh each spool's stock, or weigh each roving end separately. All ends will be the same length.

Knit Goods Separated by Dissolving Alginate Yarn

Technical Editor:

We are working on something to melt out separating threads in knitted goods. Is there a machine available to perform this function? (9618)

Your idea of melting out separating threads in knitted goods is an interesting one. No record of a machine to do this work can be found.

Such a treatment might be harmful to the surrounding areas of fabric, especially if a looping or fingering operation is later required. A method has been used in England to separate socks made on machines such as the Komet, which produces string work. Six courses of alginate yarn are introduced immediately before the first course of the welt. After knitting, the goods are separated by cutting through the alginate courses. During subsequent scouring operations the remaining alginate threads are dissolved. The goods may be scoured in an alkaline solution while in their string formation. The cutting operation is eliminated.

The materials used in producing this synthetic yarn are derived from seaweed, and the yarn is manufactured by Courtaulds Ltd.

Rings and Traverses for 22s to 30s, 40s to 65s

Technical Editor:

What are the best spindle lengths and ring sizes for the spinning of 22s to 30s carded yarn and 40s to 65s combed yarn? Also, are composition bobbins replacing wooden bobbins? (9627)

Good spinning practice today on conventional frames:

Yarn	Ring	Traverse	Twist Multiplier
22s to 30s carded filling yarn	2 (in.)	8 (in.)	3.75
22s to 30s carded warp yarn	2¼	8½	4.75
40s to 65s combed filling yarn	1⅝	7½	3.75
40s to 65s combed warp yarn	1¾	7½	4.75

Most spinners appear to favor wooden bobbins. This preference is apparently based on the uncertainty of the potential life of the new composi-

When you increase abrasion resistance of rayon and acetate blends . . .

is pilling your problem?

. . . then add Dynel

COMPARE PERFORMANCE

Blend	*Performance characteristics*
50% acetate 50% rayon	Lacks sufficient abrasion resistance for end use planned.
35% acetate 50% rayon 15% Fiber "#1"	Fiber "#1" adds strength and abrasion resistance, but has short useful wear life. Pills quickly.
25% acetate 50% rayon 25% DYNEL	Dynel steps up strength and abrasion resistance without pilling. ADDS GREATLY INCREASED USEFUL WEAR LIFE.

- ***for greatly increased useful wear life.***
- ***for higher abrasion resistance without pilling.***
- ***for greater strength, wet and dry.***
- ***for greater loft, improved wrinkle resistance, better shape retention.***
- ***and no other fiber—at any price—can give you better crease retention, wet or dry.***

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tion bobbins now in use. But the quality and service of the present improved composition bobbins should not be judged on the unsatisfactory performance of some of the previous types. If the cost factor offers any advantages, a fair trial might prove profitable to a mill.

Cheese Packages Have Replaced Skeins of Silk

Technical Editor:
Is there any research now going on that has encouraging possibilities for raw silk? (9626)

No new developments in this country are known. In Japan there has been some research and recent development in more efficient raw-silk manufacturing. Automatic silk reelers and cocoon feeders have been developed. Raw silk is now coned, and cheeses are used instead of skeins.

Recent research has developed a substitute for the old method of degumming silk by soaking overnight. Now, after the silk fibers are taken up, laced from the cocoons, and passed through the travelette, the filaments are immersed in a dilute polyethylene bath, which is kept within a certain temperature and definite density to give the silk the desired softness. This nonionic activator loosens the sericin gels and has fast penetration into the silk fiber. Not only does this treatment eliminate the long soaking hours, but it also eliminates deterioration and oxidation during long storage.

Rib Machine for Worsted Determined by Formula

Technical Editor:
What is the formula for determining the proper cut circular-rib knitting machine for worsted yarn? (9620)

The formula for circular rib machines is:

$$\text{Cut} = 2.4 \sqrt{\text{Bradford worsted number}}$$

An example for 1/15s worsted:

$$\text{Cut} = 2.4 \sqrt{15}$$
$$= 9.3$$

Cut = 9 or 10

Filter Cloth Made From Webs and Tobacco Cloth

Technical Editor:
How is this filter cloth produced commercially? What are the machines used? What solution is used to make the fibers cling to the woven portion? (9624)

The filter cloth is known as cloth-covered wadding and is used in dairies for filtering milk. It is made by laying a number of card webs on each other

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- for permanence of fungicides, fire-proofing, moth-proofing and other finishing agents.
- and other deteriorating effects of light and laundering.

More is required of modern fabrics than ever before if they are to stand up in competition today. The Atlas Fade-Ometer and Launder-Ometer will give you dependable test results in a minimum of time and at minimum cost.

Write for information on the new Atlas Scorch Tester for testing damage due to chlorine retention.

ATLAS ELECTRIC DEVICES COMPANY

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WEATHER-OMETERS • FADE-OMETERS • LAUNDER-OMETERS

to obtain the desired weight and thickness. The woven portion is purchased from any of the manufacturers of tobacco cloth and may be anchored to the wadding with adhesives, resins, or starch solutions. The resins, of course, must be nontoxic. There are no particular machines used except cotton cards and a roller-pressure device for binding the two component materials.

Cotton Bags for Cement Are Given Heavy Sizing

Technical Editor:

We want to make cement bags from cotton waste. Is a special treatment required? (9625)

Osnaburg cloth generally is used to make cotton cement bags and ordinarily is not treated. However, as much as 12% sizing is used to get the desired stiffness. The sizing must not be injurious to the cement. In some cases, a mildew-resistant treatment is used. This treatment is given if the bags are to be exposed to severe dampness.

Cloth Must Keep Taking Up To Weave High-Pick Fabrics

Technical Editor:

We are weaving screen-print cloth of undegummed silk, 120 ends to the inch in the reed and one end per dent. The picks are 120 per in. How can we weave the cloth uniformly square? (9585)

High-pickage materials are always hard to handle at the loom. There's so much beat-back that the cloth is often uneven.

The following points may help you to make fabrics of uniform squareness:

1. Have the take-up roll in good condition. The covering should be free from blisters and overlapping layers. Some of the heavily ribbed covers lose traction rapidly; but if you hold the cloth at the pressure roll, you can tell if it's slipping.

Re-cover the pressure rolls if necessary. The cover must be soft but resilient. Hard rolls just won't take up the cloth.

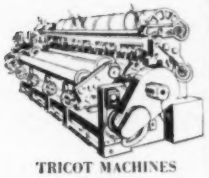
Set the take-up gear close to avoid slippage.

2. Check the beat-back. Use reed cradle springs that are heavy enough to prevent excessive beat-back. Let the yielding reed vibrate $\frac{1}{8}$ in.—that's enough. Replace worn studs and bearings at the reed cradle.

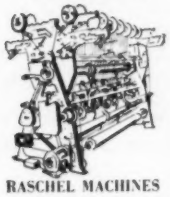
3. Set the let-off. On Bartlett let-offs, set the stroke on the pallets after the let-off is reconditioned. All let-off stops should be of the same duration, and the same number of ratchet-wheel teeth should be let off during each ratchet-wheel movement.

On precision let-offs, check the

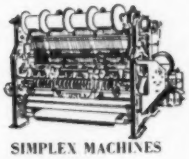
The Reiner Line:



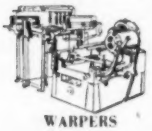
TRICOT MACHINES



RASCHEL MACHINES

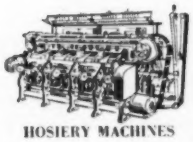


SIMPLEX MACHINES

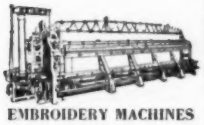


WARPERS

CREELS



HOSIERY MACHINES



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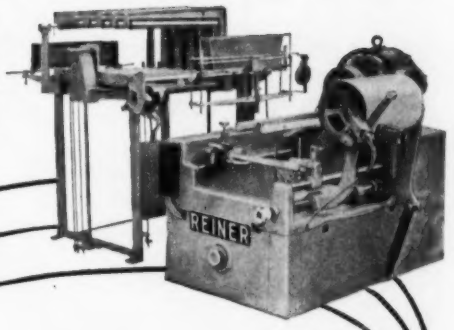

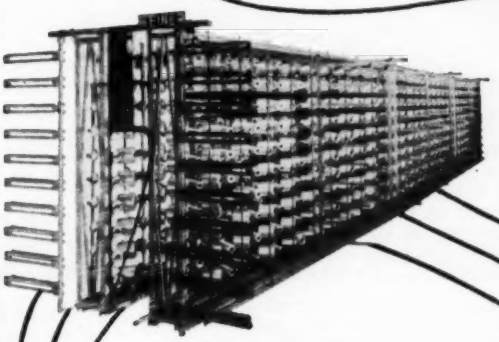

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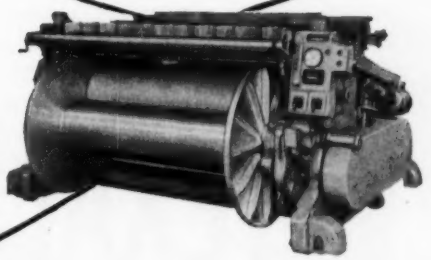

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complete assembly: tear it down, clean the parts, and replace the grease. Set the stroke so that the ratchet handwheel turns regularly.

4. Warp the yarn on the proper beam. Adjust the width of the beam between beam heads to within 1 in of width of cloth in the temples.

Set the tension on the warp heavy enough to keep the cloth tight at the beat-up.

5. Make the temples hold. Use good temple rolls, and adjust the caps to form a straight cloth line from the warp beam to the breastbeam.

Toughness and Tenacity Are Variations on a Theme

Technical Editor:

What is the difference between "toughness" and "tenacity" as a physical property of synthetic fibers? (9607)

Toughness is the ratio $\frac{\text{gcm.}}{\text{dcm.}}$. When simplified, this becomes $\frac{g}{d}$ or grams per denier, which is the measurement for tenacity. Tenacity is the term most often used in ASTM.

Toughness is the ability of a fiber to absorb work. It is the total area under the stress-strain curve. (18th Edgar Marburg lecture, ASTM, by H. D. Smith, 1944.) Tenacity is breaking strength per unit fineness.

You Have To Experiment To Get Settings for Latex

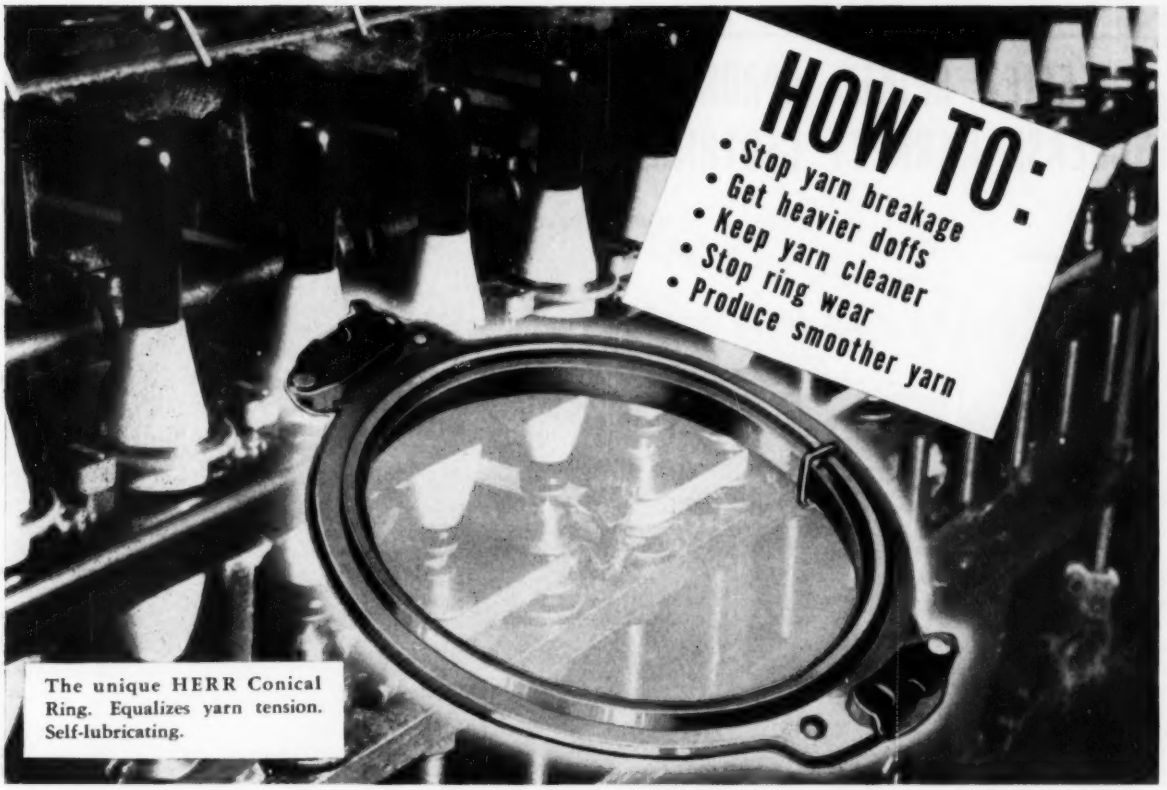
Technical Editor:

Please give me information on the application of a latex backing to a fabric. What are the recommended settings on the coating machine? How can we prevent leakage of the latex through to the face of the cloth? (9599)

The proper method of rubber coating can be attained only through experimental procedures because different textures require different machine adjustments to control the application of the latex. Variation of viscosity of latex solution is in direct proportion to your machine adjustments.

The puddle method is to apply latex from a puddle of rubber between a doctor blade, which is attached to a ledger blade, and a block, which is set in front of this doctor blade. The ledger blade is set at approximately a 90° angle, and the thickness of the doctor blade depends on how much rubber you want on the cloth (the more rubber you want, the thicker the blade will be). The amount of rubber can also be controlled by how much puddle space is left between the block and doctor blade.

Keeping the rubber from going on to the face depends on several things:


HOW TO:
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• Get heavier doffs
• Keep yarn cleaner
• Stop ring wear
• Produce smoother yarn
The unique HERR Conical Ring. Equalizes yarn tension. Self-lubricating.

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- Fiber blends
- Acrilan
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• HERR Conical Rings adapt your equipment for any textile fiber or blend. Whether you use natural, synthetic or a blend of these fibers, you'll get more production at lower cost with conical rings. And you can get conical rings only from HERR. Whatever spinning or twisting problems you have, you'll find HERR glad to offer friendly advice and engineering counsel. Mail the handy coupon below today for FREE information on HERR Conical Rings.

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HERR Manufacturing Co., Inc.
309 Franklin Street
Buffalo 2, New York

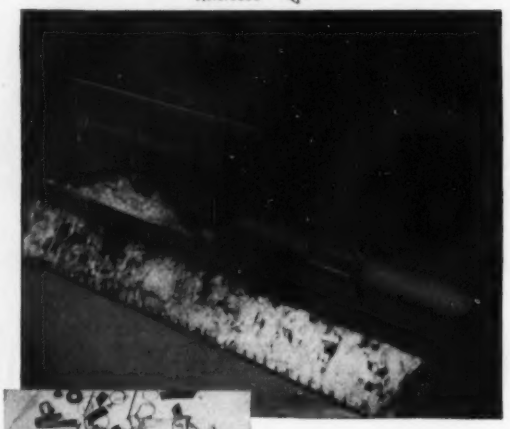
Without obligation, send me complete information on how HERR Conical Rings increase production and cut costs !

Name ..... Title .....
Company .....
Address .....
City ..... State .....

FURNITURE MANUFACTURER Reports:

ERIEZ SPIKED APRON MAGNETS INCREASE GARNETT CLOTHING LIFE 300%

Preventing $5400 damage to garnetts in 3 years' time . . . increasing the life of garnett clothing three times . . . precluding fires in process lines . . . eliminating costly downtime — that's the fine record of three 58" Eriez Spiked Apron Magnets at the Chicago plant of a leading furniture manufacturer. Installed on feeders ahead of the garnetts, the magnets pull several pounds of tacks, staples and other tramp iron each day from waste cotton used to make batting for the company's cushions and other fine upholstered furniture. "The Eriez Spiked Apron Magnets are doing such a fine job of eliminating tramp iron from our lines, that operation without them would now be unthinkable!"



Eriez Spiked Apron Magnet was the first permanent magnet specifically designed for textile applications. Brackets, hinges, textile lift handles . . . everything necessary to mount and put into operation are included in the package. With Eriez Spiked Apron Magnets on your feeders, no tramp iron can ever get through to chew up cards, garnetts, etc., or to start fires!

Here are 5 features exclusive with Eriez magnetic separators:

1. Riveted construction adds rigidity . . . increases structural strength.
2. Cover adds to longitudinal stiffness . . . prevents tampering and accumulation of iron on backs of castings with consequent shorting of magnetic circuit.
3. Two-section magnet . . . makes cleaning quick, simple, easy.
4. Insulation confines magnetic strength to working surface . . . no bleeding to surrounding areas.
5. Flush air gap prevents gathering of fine iron which can short out magnetic field.

Write today for FREE 6-page Bulletin 563 which describes all Eriez magnetic separator installations for the textile industry.

ERIEZ MANUFACTURING COMPANY

11 Magnet Drive • Erie, Pennsylvania

Nine Out of Ten Textile Mills Specify ERIEZ

first, the tension of the cloth; second, the viscosity of the solution; third, the size of the puddle; fourth, the speed of the machine; and also the construction of the cloth. If the cloth is too thin, the rubber will go through the cloth no matter what provisions are made.

As stated before, the process is more or less experimental until you find a so-called formula. In other words, the setting of your machine depends on the weight of the cloth, the amount of rubber you wish to put on, and the type of rubber needed to attain the desired coating.

Eliminate Oil Spots With "Keep Clean" Campaign

Technical Editor:

We are experiencing considerable difficulty with brown and black oil stains on spun-rayon plain fabric woven at our mills. Most of these stains are not removed in scouring and bleaching, although we pad the fabric thoroughly with cyclohexanol.

Can you suggest an alternative padding solution that will insure removal of these stains in scouring and bleaching? (9622)

No sure cure is known for your provocative problem.

Soiled cloth has been dealt with in some of our most progressive mills by directing the "Keep Cloth Clean" campaign to the men and women on the brooms, wiping rags, and machines.

Some of the effective measures used are: constant cleaning of floors and wiping up of oil spots; wiping of machinery and careful lubrication; segregation of soiled filling bobbins; careful instructions to employees, with penalties imposed for soiled goods; and a careful grading system during inspection before bleaching or dyeing.

If oil spots cannot be eliminated at the source, a padding of 10% Igepal CA (concentrated) and a vigorous scour at 140° F. might do the trick. Some of the particularly dirty oil stains cannot be removed without damage to the cloth.

If You Use Open Kettles You Have To Lose Steam

Technical Editor:

Can steam be successfully saved in a dyeing operation in which open kettles are used if the kettles are converted to a closed-coil heating system? (9588)

The problem you face is a common one that continues to baffle the experts.

As long as water must be used in dyeing processes, we face the problem of evaporation. At the boil, water evaporates violently and cools the

tiny to
giant-sized bearings

with TEAM-WORK built-in every size

With every size in SKF's wide range of ball and roller bearings, you receive an extra quality—*team-work*. This is the ability of SKF field and home office engineers to cooperate productively with your equipment designers. Helping to solve their bearing problems is the *extra* which all industries have learned to expect from SKF.

SKF

BALL AND ROLLER BEARINGS

SKF INDUSTRIES, INC., PHILA. 32, PA.— *manufacturers of* SKF *and* HESS-BRIGHT *bearings.*

RUGGED, LOW COST AIR CYLINDER WITH BUILT-IN VALVE SETS NEW STANDARDS FOR FAST, PRECISION OPERATIONS

Built-in electrical operating controls, built-in 4-way valve, built-in dual piston rod speed regulators, all with a single air connection, simplify installation of economical pneumatic circuits.

Any repetitive push, pull or lift movement now done manually can be performed infinitely faster, safer, and at lower cost with this unique, electrically-controlled Bellows Air Motor. The range of work it can do is limited only by the imagination of the tool designer or production engineer.

Unlike conventional air cylinders which require separate remote valves and cumbersome piping, the Bellows Air Motor is a complete power unit. It is compact, fits into crowded quarters, on moving machine elements. It is fast, responds to a starting impulse instantly. It is safe. Its low voltage operation simplifies wiring. It is sturdy: records of 10,000,000, 15,000,000, even 30,000,000 cycles without maintenance or repairs are commonplace.

The Bellows Air Motor is made in a wide range of mounting styles; in five bore sizes to meet varying power requirements; and in standard stroke lengths up to 48". For mechanical or manual operation the Air Motor can be equipped with a built-in manual valve, or for operation in explosive-hazardous areas with the built-in explosion-proof electrically controlled valve.

The Bellows Air Motor gives you an entirely new conception of the productive possibilites of air power. In the thousands of manufacturing plants where it is in use, it is establishing daily new records for cost reduction and improved productive efficiency. In metal working, in plastics, in woodworking, in any industry you can name, these versatile power units are sparking the imagination of cost conscious production men looking for ways to do old and new jobs better.

Write For This FREE 36-Page Booklet

HERE IN THESE QUICK-READING PAGES IS THE STORY OF "CONTROLLED-AIR-POWER" — WHAT IT IS DOING FOR OTHERS — WHAT IT CAN DO FOR YOU. THERE IS NO COST, NO OBLIGATION. ADDRESS: DEPT. TW-253, THE BELLOWS CO., BELLOWS BLDG., AKRON 9, OHIO. ASK FOR BULLETIN CL-50.

694 A

The Bellows Co.

AKRON 9, OHIO

"CONTROLLED-AIR-POWER" FOR FASTER, SAFER, BETTER PRODUCTION

bath. This heat loss must be replaced by the introduction of more heat in order to maintain the boiling.

If there is no attempt made to reduce the complete loss of steam that occurs in an open kettle, the majority of heat energy is dissipated into the atmosphere.

Coverings such as hoods, glass-windowed enclosures, etc., will tend to condense much of this unusable steam and return it to the dyebath in the form of very hot water.

It would appear that the conversion of open-type kettles to closed-coil heating is a waste of money. Unless your equipment is enclosed, there is no alternative but to lose steam.

Useful Accessories For Textile Mills

▶ To request further information on any item, please use the card in the Reader-Service dept.; refer to the number at the end of the item concerned.

Easy Wire-Fence Painter

A complete "FencPaintR" kit consisting of a handle, applicator, guard, bracket, handle bolts, applicator with attachment lags, enamel receptacle, and front splash plate has been brought out by Meinhardt Cleaning Materials Co., 2314 W. Van Buren St., Chicago 12, Ill. The kit allows one to paint a Cyclone wire fence, doing a first-class job, for .025¢ per square foot, posts and braces included. This low cost is said to be one-quarter the cost of ordinary methods. Coverage of 600 sq. ft. on both sides of a wire fence is said to be obtained from one gallon of paint. (U-1)

Rider-Type Tractor

A new rider-type tractor for handling semi-live skid loads is now being produced by The Raymond Corp., 9592 Madison St., Greene, N. Y. It is an addition to the company's regular line of rider-type industrial electric trucks. The power unit is the same unit as used on the company's straddle-type, platform-lift, and low-lift pallet trucks.

Capable of handling loads up to 2,000 lb., the tractor will travel up to 5 mph. loaded and 4½ mph. empty. It is extremely compact and light in weight. As a result, it has low battery-capacity requirements and can be used on elevators and low-capacity floors like lofts. Its short length and patented offset drive wheel with 200° turning arc permit it to be

Still on Top!

with the many exclusive performance features that have made

ECLIPSE BOBBIN HOLDERS

THE FAVORITE!

The many exclusive features built into the Eclipse Bobbin Holder have made it the favorite of many leading textile organizations. They have found in actual operation that the Eclipse Bobbin Holder is outstanding in every way, and that the Eclipse reputation for basic quality and goodness is well deserved. If you are interested in modernizing your present plant equipment, you will surely want the finest—and the finest means Eclipse. Investigate today by writing or calling the Eclipse Machine Company direct.

These Features Mean Eclipse Superiority

1. Completely replaces wooden skewers.
2. Ball bearings minimize friction, resulting in uniform quality of roving.
3. Permits less twist. Tests indicate yarn of more even texture.
4. Creel boards easily cleaned. Overhead suspension leaves open creels. Blowers more effective.
5. Better spinning of spun rayon.
6. Easier creeling; less physical effort and fewer motions required.
7. Improved brake attachment prevents overrun and backlash.
8. Now cadmium plated and stainless steel balls more rust resistant.
9. Time-tested product—holders in operation for over ten years.
10. Easy to install; practically no upkeep.

Export Sales: Bendix International Division, 72 Fifth Avenue, N. Y. 11, N. Y.

ECLIPSE MACHINE DIVISION of Bendix AVIATION CORPORATION

ELMIRA, NEW YORK

ECLIPSE

U. & U.

LEIGHTON *features* SMALL SIZES *that are* SEAMLESS

Suitable for
INFANTS - CHILDREN
also
JUVENILE GARMENTS

SIZES THAT ARE NOT PRODUCED ON OTHER MACHINES WITHOUT CUTTING AND SEWING

The Leighton Automatic Transfer Machine can knit *Seamless* Sleeves and Bodies for Infants' Wear; sizes 2, 4, 6 and up. No cutting. No sewing. Perfect Racked Edges are adaptable to either 1&1, 2&1, 2&2 Cuffs.

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Other Leighton Knitting Machines include:—Three Needle Selective Rack with two or four feeds, two and three Finger Stripers, Pattern Wheels, Separating Course, and individual stitch adjustments.

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Write for further information.

LEIGHTON MACHINE COMPANY
ESTABLISHED—1873
LEIGHTON
MANCHESTER NEW HAMPSHIRE
INCORPORATED—1894

used in crowded production areas or narrow warehouse aisles. In addition, it has a patented knee-action swivel caster that compensates for uneven floors. (U-2)

Tough Floor Covering

A new type flooring material is announced by United Laboratories, Inc., 16801 Euclid Ave., Cleveland, Ohio. Known as "Latex-O-Crete," the material is designed to resist the destructive action of chemicals, many acids, oils, solvents, and other items that cause deterioration of floors. Of special interest to most plant operating officials is the fact that the product may be applied directly over the old surface at an average depth of only ¼ in. No special floor preparation is necessary other than thorough cleaning.

The product is shipped in complete "unit" form ready for application. All ingredients are proportioned at the factory, and no other materials need be added. The product contains no asphalt or other bituminous substances. It will withstand considerable heavy traffic from materials-handling equipment and may be applied either interior or exterior. (U-3)

Chemical-Resistant Diaphragm Valves

Combining the corrosion resistance of Ace Parian, a plastic compound in the polyethylene family, with the Saunders diaphragm principle, new general-purpose diaphragm valves that are said to be ideal for handling a wide variety of corrosive chemicals have been brought out by American Hard Rubber Co., 93 Worth St., New York 13, N. Y. Tough, odorless, tasteless, and non-toxic, they are recommended for handling many food products.

Metal never comes in contact with the liquids handled. The diaphragm may be rubber, neoprene, or polyethylene, as required. The bonnet assembly is sealed off from the solution, and the valve has no stuffing box to leak. It can be serviced without being removed from the line, and all parts are interchangeable.

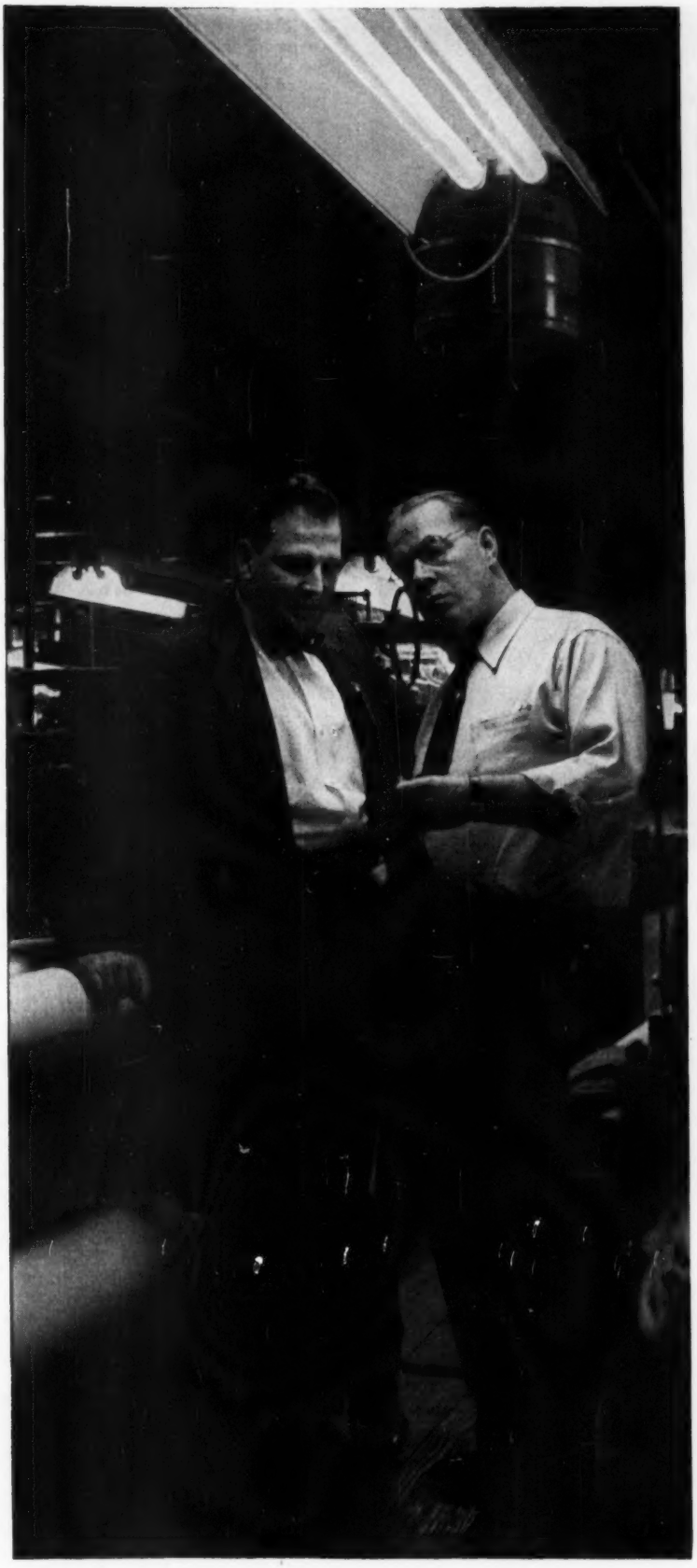
The new valves are available in all standard sizes from ¼ to 2 in., threaded for standard pipe threads. Working pressure is 50 lb. per sq. in. at 77° F. (U-4)

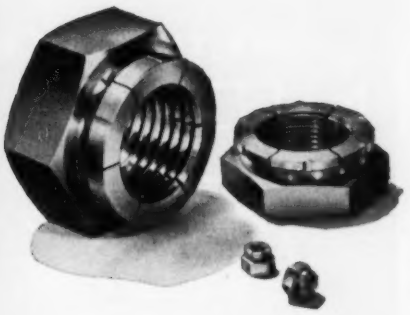
Portable De-Magnetizer

Called "Miti-Mite" De-magnetizer No. 500, a new, portable instrument has been put on the market by Enco Mfg. Co., 4520 W. Fullerton Ave., Chicago 39, Ill., that "thoroughly" de-magnetizes tools, dies, parts, pieces, etc., by merely passing over the surface of the item to be de-magnetized. The consistent performance, utility, and dependability of the device are said to be excellent, according to reports coming in from users.

The instrument consists of a base in the form of a small block and an extension cord. The base is made of non-breakable molded plastic—1¼ in. wide, 4 in. long, and 1⅝ in. high. On top of and toward the front of the base, in an offset, is a single-pole action switch that is easily pressed with the forefinger while one is holding the unit. The cord, included with the unit, is 6 ft. long, is oil resistant, and is equipped with a soft rubber plug.

In use, the instrument is plugged into





Just what are these Flexloc nuts?

"They're nuts that lock and stay put on a bolt. Once you install them, you can forget them. They sure save a lot of time in maintenance. Look at this shuttle assembly, it's fastened together with FLEXLOC *Self-Locking Nuts. We haven't had to put a wrench on it since we installed it."*

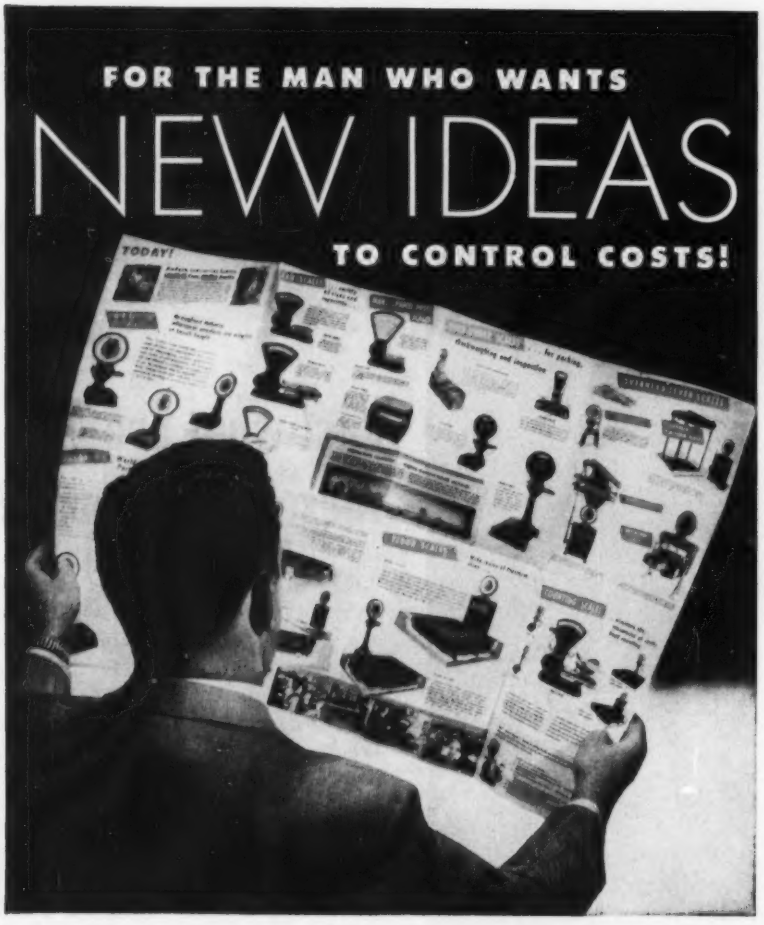
Nuts that work loose cause real trouble. Machinery is often damaged and stopped. Production suffers, deliveries lag, and you lose money. But there's a sure way to keep nuts where they belong. Specify and install FLEXLOC Self-Locking Nuts.

Standard FLEXLOCs have higher tensile strength than most other locknuts. They are one piece, all metal. And one nut covers the entire temperature range to 550°F. Stocked by leading industrial distributors. Increased capacity enables us to make quantity shipments of FLEXLOCs in a wide range of sizes. Write for literature and samples. SPS, Jenkintown 35, Pa.

FLEXLOC
LOCKNUT DIVISION

SPS
JENKINTOWN PENNSYLVANIA

Our Fiftieth Year : A START FOR THE FUTURE



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Whatever your problems in scales for receiving, production, shipping, stock rooms, and many other textile weighing operations . . . there's a modern Toledo to do the job with high *accuracy, speed* and *dependability.* Have you checked your scale needs? Get latest information in this widely used reference on Toledos that help you guard costs . . . speed production. Look into the advantages of Printweigh in stopping losses that originate through human errors. Send coupon for new edition—"Toledo, Headquarters for Scales."

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any 110-v. a.c. outlet. It is then placed on top of the part to be de-magnetized, the action switch pressed, and the device moved slowly over the surface of the part. When the switch is pressed, the circuit is closed, and a field of flux is set up that neutralizes magnetism. Releasing the switch automatically shuts off the unit. (U-5)

Redesigned Magnetic Pulleys

New, redesigned 20- and 24-in.-dia. magnetic pulleys with 30% greater pulling power than previously possible are now being sold by Eriez Mfg. Co., 7 E. 12th St., Erie, Pa. The increased strength comes from the addition and special positioning of more Alnico V, the most powerful magnetic alloy used commercially.

A more uniform, lighter-weight, and stronger construction is featured in the improved pulleys, which are used extensively in mills to separate automatically from materials in process any tramp iron or steel particles contained therein. Thus, the pulleys protect machinery from damage, preclude fires due to sparking, and also prevent stock contamination. (U-6)

Strong, Transparent "Scotch" Tape

A new, transparent pressure-sensitive tape—only 2 mils thick yet "unusually strong"—has been announced for industrial use in ½- to 1-in. widths by Minnesota Mining & Manufacturing Co., 900 Fauquier St., St. Paul, Minn.

The new tape, "Scotch" pressure-sensitive tape No. 850, is made with a polyester film backing that is superior to most existing plastics in heat and chemical resistance, the company says.

The new tape is expected to find wide use for splicing, protecting, tube sealing, reinforcing, edging, covering, masking, and bundling jobs, especially in situations where "excellent" resistance to acids, alkalis, acetones, ketones, hydrocarbons, esters, and other common solvents are needed.

Other properties (for ½-in.-wide tape) include 15-lb. tensile strength, 120% elongation, 20 oz. of adhesion, flexibility at very low temperatures, and high dimensional stability despite any heat and humidity changes. The tape's polyester-film backing, in short, is said to be two to eight times stronger than other plastic films. (U-7)

Submersible Sump Pump

A new submersible sump pump, Model P-109, manufactured in a cast-iron waterproof case, has been placed on the market by Kenco, Inc., 1125 N. Ridge Road, Lorain, Ohio. The pump incorporates the company's "No-Float" liquid-level control switch. The outer case is cast of high purity iron and coated with a rust inhibitor. All functional parts—impeller, switch parts, etc.—are retained in bronze.

The P-109 is sold at a substantially lower price than the all-bronze type of pump. Extensive job tests conducted over a period of several years have proved the value of the new model, the company says. (U-8)

Automatic Alarm Reset

A new alarm-silencing relay that auto-

How does U. S. Rubber make quills water-resistant?

Here's how: By making them of Uscolite, the remarkable new rubber-plastic compound. Quills made of this wonderful material not only are resistant to water, but they retain their shape throughout their entire service life. They last two to three times longer than wooden quills.

Not only that, but Uscolite quills do not chip or splinter, nor do they soften at the tip when run through conditioning agents. They have high-surface friction, which means excellent holding properties which eliminate or minimize sluffing of the yarn.

Like every other product in the complete line of United States Rubber Company's textile mill specialties—all the way from warp tubes to cop butts, Uscolite quills *last longer* and permit a *higher quality* of textile output. Write for more information today.

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STERLING RING TRAVELER CO.
FALL RIVER, MASS.

matically resets itself has been introduced by the Industrial Div., Minneapolis-Honeywell Regulator Co., 4494 Wayne Ave., Philadelphia 44, Pa., to replace old-style manual alarm shut-offs for processing control systems.

The new relay provides a method for shutting down the alarm while insuring automatic reset when the alarm condition is corrected. A red pilot light on the relay warns until the alarm circuit has been cleared. In operation, when the controller switch makes contact, the alarm and pilot light are energized. When the operator pushes a button on the front of the relay, the alarm is stopped, but the pilot light remains energized. The light will go out when the improper condition is corrected and the relay is ready for the next cycle. (U-9)

Automatic Dehumidifier

A new "Aqua-Sorber" dehumidifier for commercial and industrial applications has been announced by Walton Laboratories, 1188 Grove St., Irvington, N. J. The dehumidifier includes an automatic control that saves on power consumption. The control is activated by the moisture content of the atmosphere. Thus it operates only when necessary rather than at timed intervals.

Other "Aqua-Sorber" features include maximum air flow, easy removal of the water container, and a hose connection readily accessible for permanent automatic water removal through drain piping. All models feature a handy "on-off" switch and a ½-hp. motor. (U-10)

Automatic Reset Counters

"Cyclo-Monitors" that can count revolutions, strokes, or electric impulses; transfer the switch when a pre-set count is reached; hold the switch in the transferred position for a predetermined count, momentary or dwell, without interruption of the counting process; return the switch to its normal position; and repeat this cycle continuously, without resetting or checking, are now available from Counter & Control Corp., 5225 W. Electric Ave., Milwaukee 14, Wis.

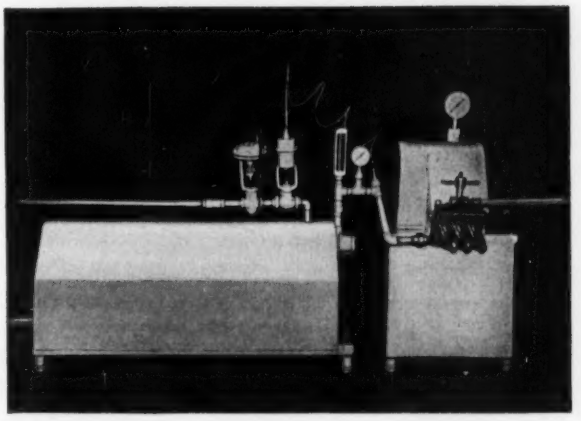
The controlling counter determines not only when the switch will transfer but also how long the switch will remain in the transferred position. Any "Cyclo-Monitor" can close an open circuit, open a closed circuit, or simultaneously close one circuit and open another when the desired count is registered.

Through "Cyclo-Monitors," the company claims, many machines and processes can be greatly simplified by the elimination of change gears, complicated cam circuits, and the like. Moreover, setup time for any desired cycle sequence can be reduced to a very desirable minimum. (U-11)

Gland-Type Needle Valve

A new gland-type bronze needle valve has been announced by The Lunkenheimer Co., Box 360R, Cincinnati, Ohio, that is small, compact, and ideal for use in pinpoint control on small lines where fine regulation of flow is essential. It is manufactured in a full range of sizes from ⅛ to 1 in. and in both globe and angle patterns. The handwheel is the company's new

Continuous size preparation and increased loom efficiency with the new



Scott & Williams Hydropulse

What the Hydropulse is: like many important developments, this unit is basically quite simple in design. It consists of a heat exchanger for heating cold starch mixes to the swelling point, and a high pressure homogenizer to convert the mixes into finished size of controlled viscosity.

What it can do for YOU: the Hydropulse will give you *continuous size preparation*. Costly batch methods have been completely eliminated. You get fresh size at the push of a button.

In addition to increased weaving efficiency you get: savings on starch costs, savings on steam costs and better process control. You can be sure of all these benefits because the Hydropulse is specifically designed for textile use by a company that has specialized in textile machinery for over 80 years...Scott & Williams, Inc.

☆

For more information: write today to one of the addresses below.

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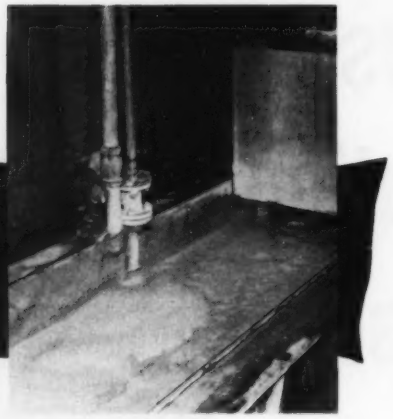

You can rely on improved bleaching action from every pound of peroxide because:

★ Star is specially purified silicate permitting even Oxygen release.

★ Star has reserve alkalinity to compensate for any acid conditions which may arise during the bleaching process.

Use Star in your bleaching system to save money. Write today for prices in drums and tank cars.

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A Superior Blanket Washer Brush

With Herringbone Bristle for Nylon-Faced Blankets

Increases efficiency because of the diagonal arrangement of the bristle. This diagonal arrangement parallels the diagonal grain of the nylon-faced blanket, presenting a continuous wall of bristle to carry the water to the blanket.

This assures cleaning so thorough that a white handkerchief stays white when wiped over the surface of a washed blanket.

This new brush has the metal core and other features that make INDUSCO brushes longer lasting and dependable for every textile brushing purpose.

INDUSTRIAL *Brush Company*

WOODSIDE AVENUE • LITTLE FALLS, NEW JERSEY

"Non-Slip" design that lends itself to delicate finger-tip control.

The control valve is also being produced in an indicator model. The indicator needle valve, globe type, is available in ¼-, ⅜-, and ½-in. sizes; and the angle type in ¼- and ⅜-in. sizes. The handwheel on the indicator needle valve is of cast bronze and has numbered graduations indicated on its face, which arrangement permits resetting to a predetermined degree of opening. A spring clip, engaging serrations on the outside of the wheel, holds the valve securely at its proper setting.

Both regular and indicator patterns are made with deep, well-packed stuffing boxes and have hexagonal gland followers. (U-12)

More Sensitive Automatic Sprinkler

A new automatic sprinkler utilizing a solid organic chemical as its fusible element has been brought out by Globe Automatic Sprinkler Co., Inc., 250 Park Ave., New York 17, N. Y. The new element is said to provide the most sensitive, accurate, and adaptable means yet developed to detect and stop fire. Tests made by Underwriters Laboratories and Factory Mutual Laboratories are said to indicate its superiority.

This is said to be the first and only approved sprinkler utilizing a solid chemical for its fusible element. Because this chemical is solid, different compounds can be produced, each with a definite unchanging fusing temperature. This feature permits manufacturing an array of sprinklers that are "unique in adaptability," with temperature ratings of 135, 160, 212, 280, 340 and 415° F.

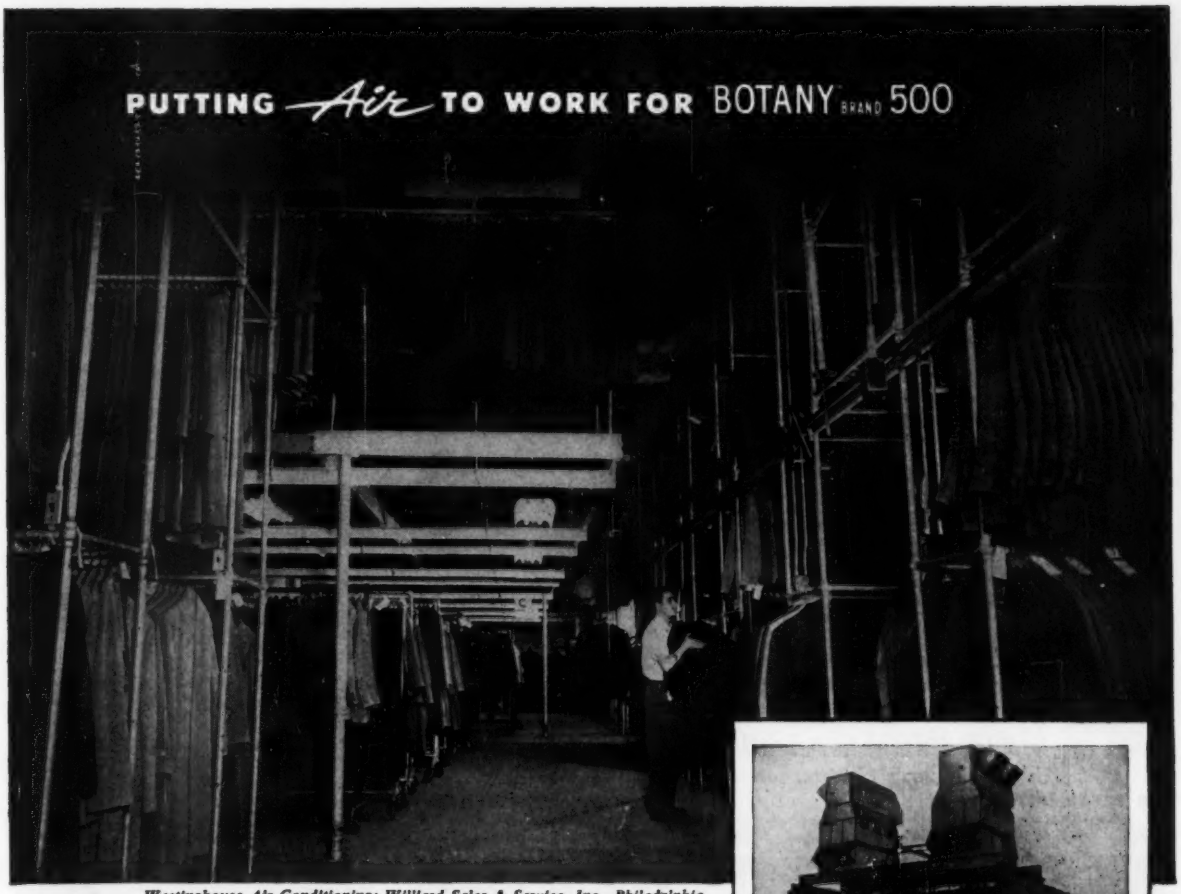
In service, when surrounding atmosphere attains the temperature for which one of these sprinklers is rated, its fusible element of solid chemical changes to a liquid. Thus the closure is opened to permit water to discharge. Being of the central-strut type, the sprinkler is less susceptible to injury than customary types with protruding arms and links. And even though smaller, more slender, and less noticeable than other types, it has greater strength than sprinklers of larger, bulkier design, the manufacturer claims.

Made of corrosion-resistant materials entirely, the frame is of special bronze composition, and its releasing members are of die-stamped monel metal. (U-13)

New "Dynamaster" Instruments

Additional round-chart recorders and automatic controllers have been added to its line of electronic Dynamaster potentiometers and bridge instruments by The Bristol Co., 117 Bristol Rd., Waterbury, Conn. The new models are accurate, high-speed, continuous-balance, null-type electronic instruments that can be used to measure any variable that can be translated into an electrical quantity, such as d.c. current, d.c. voltage, capacitance, or resistance. Typical sensing elements that can be used with the new instruments include thermocouples, radiation-detecting units, resistance-thermometer bulbs, pH amplifiers, tachometer magnetos, strain gauges, smoke-density detectors, thermal converters for power measurements, beta-ray gauges, and other types of detectors.

The measured variable is simultaneously



Westinghouse Air Conditioning: Willard Sales & Service, Inc., Philadelphia
Consulting Engineers: Cronheim & Weger, Philadelphia; Salvatore S. Guzzardi, Philadelphia

TAILORED AIR

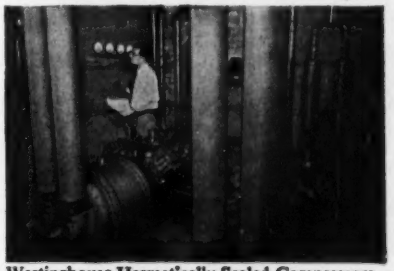
SMOOTHES THE WRINKLES OUT OF SUIT SALES

Dampness from final pressing stays in coats and suits like water in a sponge. Ten-to-one, a suit shipped damp will arrive looking as wrinkled as last week's wash. But 20,000 "Botany Brand 500" men's garments, tailored each week by H. Daroff & Sons, go out in good shape—will be crisp and sales-room fresh when they arrive.

Westinghouse Air Conditioning does the trick by *putting air to work* in this 90,000 garment storage room. Air is kept at 76° and 45% humidity to pull dampness out of suits in six hours—keep them in press and ready to ship any time. And dirt, dust and grime are locked out behind closed doors and windows throughout the year.

Westinghouse equipment can *put air to work* for you, too—with air conditioning, air cleaning or air handling. Call the Westinghouse Air Conditioning Distributor listed in the Yellow Pages, or write Westinghouse Electric Corp., Air Conditioning Division, Hyde Park, Boston 36, Mass.

Westinghouse Type EVA Evaporative Condensers provide savings up to 95% in water consumption.



Westinghouse Hermetically-Sealed Compressors—unmatched for their vibrationless, quiet operation.

Overhead, out-of-the-way Air Handling Units heat and cool Daroff executive and accounting offices.

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recorded on a 12-in.-dia. chart and indicated on a large circular scale that is legible at a distance. Models are offered for full-scale pen travel in 7, 3, 1¼, or ¾ sec. and with a wide variety of ranges. Models with all types of air-control and electric-control action are also available. (U-14)

Tiny Adjustable Speed Changer

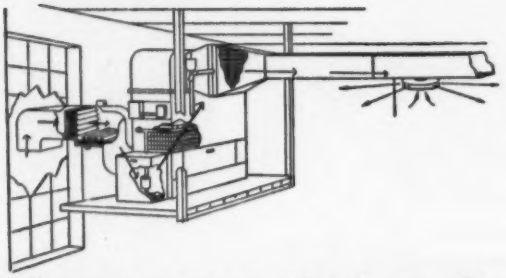
Small enough to hide in your hand and weighing less than 6 oz., the new Type-3A variable speed changer brought out by Metron Instrument Co., 432 Lincoln St., Denver 9, Colo., is said to open a whole new field of design possibilities in low-power speed-changing applications.

All speeds over a wide range are selected smoothly and quickly, whether the unit is running or stopped. High output torques and low no-load input torques are achieved by the design. Good efficiency and speed regulation are assured by the employment of precision-made parts, held to close tolerances.

Speed is controlled by an adjusting knob equipped with friction drag to prevent ratio wander. In addition, lever, push-rod, spur-gear, miter-gear, and worm-gear speed controls are available. A dial and pointer on the top of the unit indicates speed ratio.

Sealed construction, ball bearings throughout, permanent high-low temperature lubricant, in-line shafts, and operation in any position are said to assure easy adaptation of the unit under rugged conditions. (U-15)

WHY ?



are more and more executives of leading textile mills investigating the "Dry" Humidification System?

Because they secure important advantages which include:

- Uniform humidification. No spotty areas.
- Operating on the principle of molecular suspension, it produces humidification 500 times finer than spray.
- Automatic blending of outdoor and indoor air.
- Provision for complete air conditioning if desired.
- Significant fuel savings during heating season.
- Generally speaking, it is adaptable wherever hygroscopic material is stored or processed.
- Ceiling suspended platform installation available.

Write for illustrated booklets.

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"Dry" Humidification System

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Southeastern Representative: Lucas Associates, Inc., Box 1696, Charlotte 1, N. C.

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Model 3-408-16 caster with thread guards, designed especially for the needs of the Textile Industry.

Rolling stock that doesn't roll easily cuts efficiency and profits in your mill. Colson *specializes* in wheels and casters engineered for the Textile Industry. They roll easily over all floors, are rust-resistant—many models have thread guards. Colson also manufactures a wide range of trucks for the Textile Industry—hand trucks, platform trucks, box trucks, drum and barrel trucks and special devices. Write us or consult your phone book for the Colson representative near you.

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Mill Maintenance

Machine Parts Are Cleaned By Dipping

Machine parts that are to be used again after they have been run on machines for some time may be cleaned easily by dipping them in a container of cleaning fluid.

"It's easy as dunking doughnuts," says The Selig Co., manufacturing chemists, Atlanta, Ga. Their solvent, Kleena-Karb, is used to clean loom and other machine parts that have been removed to be rebushed or welded, or for machines that are to be completely reconditioned. Cleaning of gears, chains, oil screens, and other hard-to-get-at parts are some of the everyday uses of Kleena-Karb.

Overhauling jobs, such as rebuilding looms and spinning frames, are speeded up if the cleaner is used on parts removed from the machines.

The manufacturer claims that the

for SHEER fire-fighting POWER

There's nothing like a Kidde Dry Chemical extinguisher for smothering fire fast. It's the only shielded nozzle dry chemical portable. That means you get the double advantage of a most effective extinguishing agent and a wide-spread, soft volume discharge that doesn't fan or drag along air. Even an inexperienced operator can attack a fire without fear behind the "cool" protective wall of dry powder that's set up. Just pick it up, point the horn, pull the trigger. Kidde Dry Chemical portables come in 5, 20 and 30 pounds. Write us today for full information.

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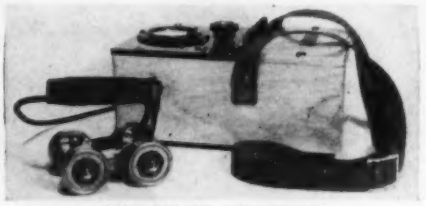
MORE
AND
MORE



TIME TESTED EQUIPMENT

DYERS - BLEACHERS - PRINTERS -

are using this rugged, accurate, simple to employ instrument for moisture checks on the running material. Moisture readable to .25% or less, and applied anywhere across the width of the fabric — for cotton, rayon and mixtures — wide percentage range.

Continuous indication from different spots across the width of the running web—using meter on AC power line permanently attached to the machine.

Machine tenders like to be able to follow the trend, to know what is happening, to pick up wet streaks as easily as reading them on a clock.

Priced within the reach of even the smaller plants. Picture shown only portable model.

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The COLE Spherical Tank on Tubular Tower is unique in its field. We design and erect special tanks of this character. It provides an attractive and serviceable unit—economical to maintain, efficient in service and pleasing in appearance.

Write for special booklet on these modern, welded Spherical Tanks which provide gravity water pressure, and for copy of latest Cole catalog, "Tank Talk."

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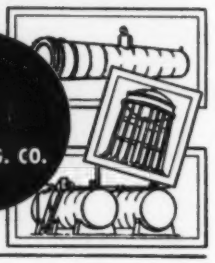

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cleaner will not injure metal parts, die-cast metal, solder, or babbit no matter how long they are left in the cleaner, since the action of the cleaner is a harmless chemical process.

The cleaning is done by a cold-dipping process that quickly and completely removes grease, dirt, gum, oil, and stains from any metal surface.

The solvent is supplied in drums of 6-, 12-, and 55-gal. capacity. A dipping basket is supplied for each size of drum. Larger tanks for cleaning may be built for use in large-scale dipping operations.

To Clean Machine Parts

Place the used machine parts in the dipping basket, and lower the parts below the surface of the cleaner. The basket is suspended from the top of the drum by set bolts.

After the parts have remained completely submerged in the solution for 30 to 45 min. or longer, depending upon their condition, lift them out. While the machine parts are still in the basket, rinse them in a tank of solvent such as Varsol.

The solution is flammable while in use, and employees should wear protective gloves when cleaning parts with it.

Knitting Costs

(*Continued from page 109*)

To calculate the percentage of winding waste to be added to the cost, all waste should be carefully retained during a period of winding one bulk lot. If 12 lb. of waste is collected during the winding of 2,000 lb. of yarn, the winding waste to be added to the cost will be—

$\frac{12 \times 100}{2{,}000}$ or 0.6% of the cut garment weight with cutting waste

b. Knitting waste

This waste will vary according to many factors such as maintenance of machinery, efficiency of operators, quality of yarn, and humidity. More than 3% waste at this stage should warrant an investigation.

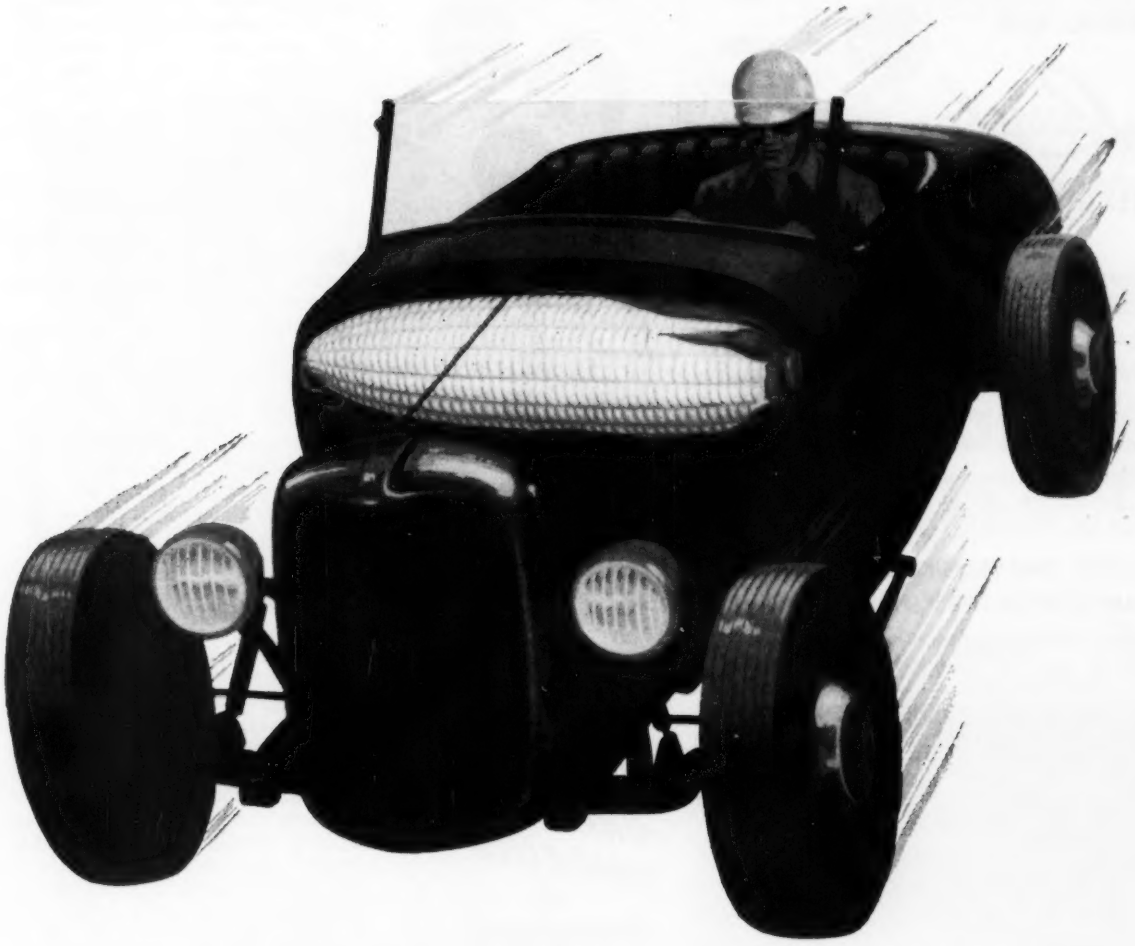
The percentage can be found in a similar manner to that outlined for calculating winding waste.

Cooperation is essential from the operators, who should be made to realize that the study is not a check on their ability, although it may reveal some discrepancies.

c. Cutting Waste

The cutting operation produces a

what's **corn** doing hitting "70" down the pike?



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For the textile industry Corn Products Refining Company supplies a variety of specialized starches, gums and dextrins... recommended ingredients for many textile processes.

We offer quality in volume supply unexcelled in the field. Complete technical service is available without cost or obligation. If you have a production problem why not check with Corn Products. We welcome your specific technical inquiries.

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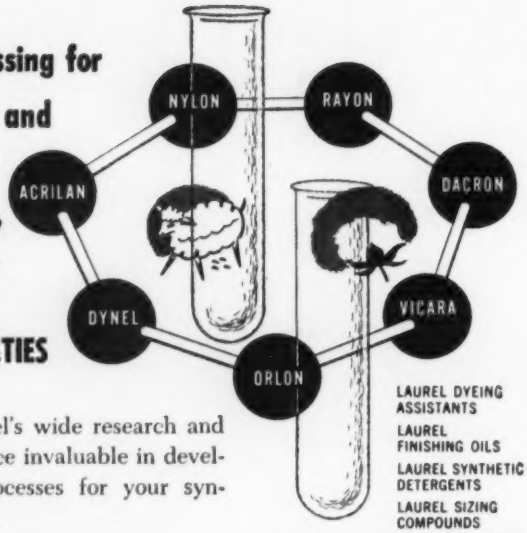
Smoother processing for your synthetics and blends with

Laurel

TEXTILE SPECIALTIES



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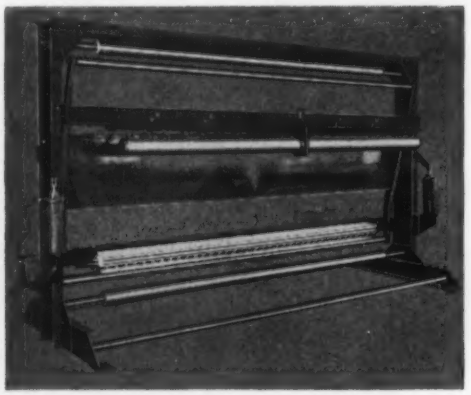

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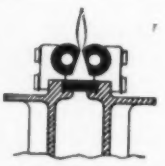
I.H.E. SINGEING MACHINE

This heavy duty machine singes closely and uniformly on either or both sides of the cloth in a single pass. Operates at speeds from 25 to 300 ypm, depending on type and weight of fabric. Electric and air-powered mechanism cuts off burners and lifts cloth away automatically when cloth speed drops below a predetermined level, or stops. Burns oil or gas. Write for details and specifications today.



Exclusive Burner Design
Patented, High velocity flame retention type burners that singe interstices as well as surface of cloth.

INDUSTRIAL HEAT ENGINEERING COMPANY
121 CLEVELAND ST. GREENVILLE, S. C.

high percentage of waste. Poor supervision of this operation may turn a profit into a loss. The best opportunities for economizing are by the employment of skilled cutters, careful supervision, and the use of the correct diameter of knitting machines.

The transition from pounds to units takes place here, and the most convenient unit for cost purposes is 1 doz. A dozen garments are cut from the correct size of fabric, the waste is carefully saved, and both items are weighed separately.

d. Seaming and Looping Waste

While this waste may seem insignificant, every ounce must be accounted for. It is preferable to keep a record over a 5- or 10-doz. lot.

Keen supervision of overseaming operators is necessary to keep this waste constant. A weekly observation of the waste hamper will reveal whether or not operators are trimming too much. Hosiery-machine timing chains should be checked to give loopers a minimum number of rounds, or a cheap yarn may be striped in after the toe oscillations.

e. Invisible Waste

As this waste is nonexistent in a solid form, it cannot be weighed but must be calculated from records. Invisible waste may be divided into three categories:

I. Loss in finishing, which is due to the extraction of natural oils and fats in the fiber during scouring, dyeing, and bleaching. Fabric and yarns should be weighed before dyeing and finishing, records kept, and the fabric weighed upon return. This loss in finishing is estimated at 3 to 4% on worsted yarns and slightly less on cotton and synthetics. If the loss exceeds 4%, the finisher should be consulted.

II. Moisture loss, caused by evaporation of the moisture from the yarn during the manufacturing process, is high in mills where no humidification systems are installed and higher still if wool yarns are processed. The weight of yarn should be checked upon receipt and corrected to the standard regain. (The standard regain of woolen yarns is 13%, worsted yarns 15%, and cotton yarns 7.5%.)

If yarns contain too much or too little moisture during the finding of a cost, resultant orders may be too light or too heavy. Lowered profits or dissatisfied customers may result from such variations from standard.

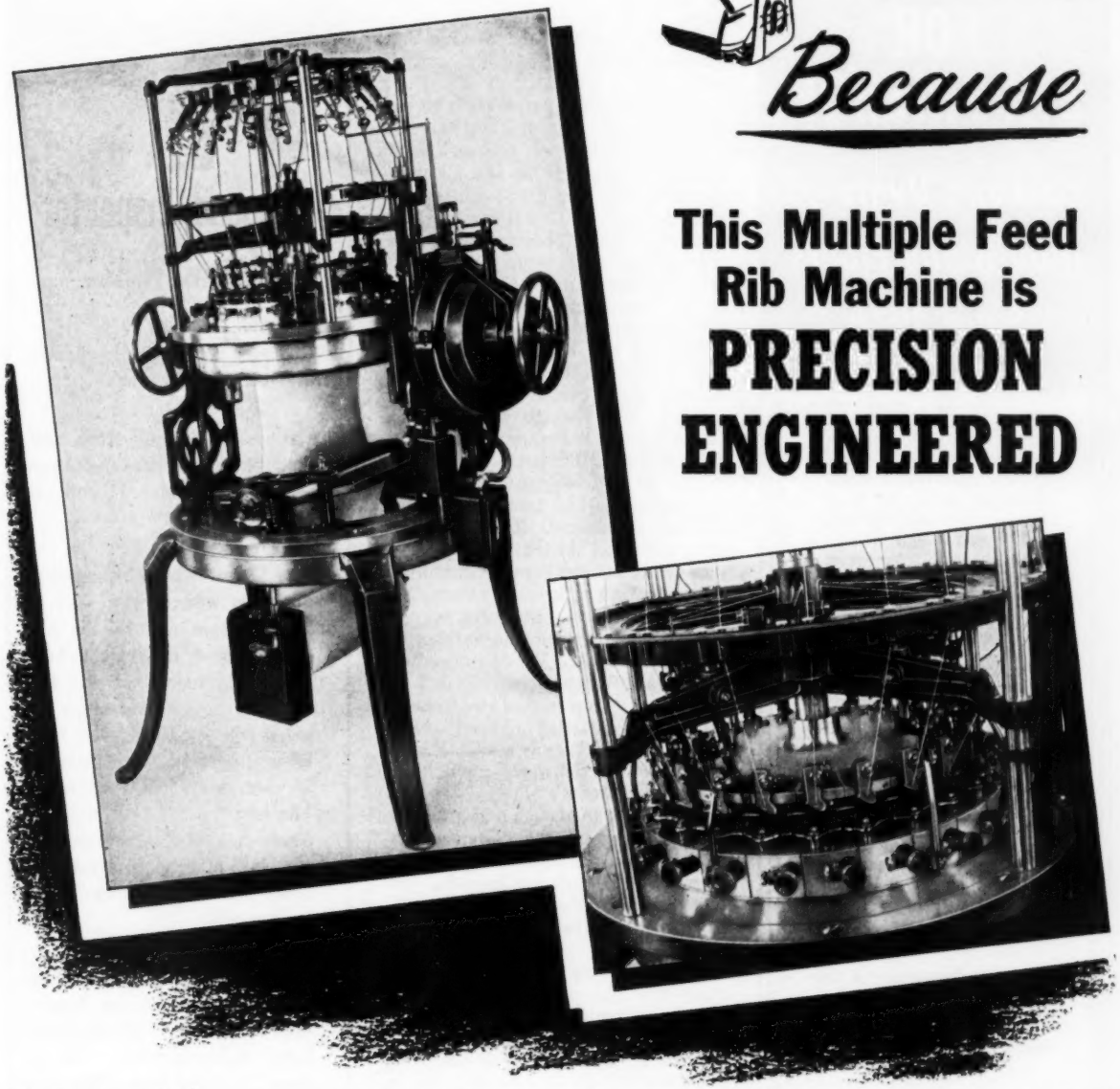
The ideal, of course, is to bring the yarn up to standard conditions of 65% relative humidity and 70° F. and process the goods at those conditions.

III. Weight loss is small and is due

You Can S-T-R-E-T-C-H Your Dollars Invested Here

Because

This Multiple Feed Rib Machine is PRECISION ENGINEERED



Need adaptable equipment for knitted garments of all types? . . . Then here is your opportunity to maintain diversified pattern designs, better styling, uniform sizes.

In addition, you get double production for unit floor space with a power increase of only about one-third. And, depth of pattern is greater where a different colored or type of yarn is used in relation to other yarns.

Economical, efficient, versatile – the WILDMAN Multiple Feed Rib Machine.

WILDMAN MANUFACTURING COMPANY

Norristown, Pennsylvania

NO SUBSTITUTE FOR EXPERIENCE

Package Dyers of Man-Made Fibers Since 1926

Key employees' service averages 15 years of package dyeing rayon, acetate, and nylon yarns. All these years of constant research and improvement are at your disposal. You can rely on Atlantic for top quality work.

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Dyers and Converters of Synthetic Yarns for All Industries

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★

to loose fibers detaching themselves from the yarn during processing.

Amount and Price Of Raw Materials

It is possible in the case of cut garments to determine the total amount of fabric used and the yarn required by marking a dozen garments from a piece of cloth, weighing the cloth, and adding the winding, knitting, and invisible losses, but not the cutting and seaming waste.

A more prevalent method is to cut out 1 doz. garments and add the cutting waste. Another method is to record the weight of the fabric leaving the stockroom and the weight of the cloth returned. The difference will show the amount of fabric used.

In the case of hosiery and other garments where more than one type of yarn may go into the garment, a suitable method to compute the amount of raw material is to weigh each bobbin at the start of 1 doz. articles, knit exactly the required amount, and reweigh the bobbins. The difference will show the amount of each fiber in the batch.

One of the biggest headaches in cost finding can be traced to fluctuations in yarn prices. If the purchase price is entered on the cost sheet and yarn prices rise, the manufacturer must take a beating or lower his costs.

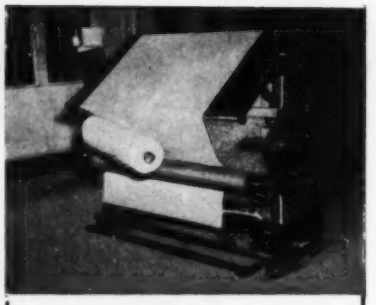
An alternative to using the current market price is to use an anticipated replacement price. When prices fluctuate violently, there is reluctance on the part of the manufacturer to order yarns; but when the market is steady and low and storage is available, sufficient raw material may be purchased to cover the season's orders.

Other raw materials that must be accounted for on the cost sheet include sewing thread, seaming and looping yarns, splicing threads, buttons, zipper fasteners, transfers, labels, tape, linen backing, ribbon, belts, buckles, elastic, cellophane packages, boxes, and other individual-packaging materials. The prices of these items can be obtained from the invoice ledger and added to the cost sheet.

Certain materials such as wax, chalk, and oil are usually included in the overhead expenses. Seaming- and looping-yarn costs can be calculated by comparing weights of yarn before and after the processing of 1 or 5 doz.

2. Direct Labor Costs

These elements include wages paid for work done only on the garment being manufactured. They would include winding, warping, knitting, separating, cutting, inspecting, mending, seaming, looping, sewing, pressing, folding, and boxing. Fixers and super-



S-2A Unispeed Inspector for Rayons

- Constant cloth speed (adjustable) with center wind.
- Collapsible winding arbor, self-supporting for convenience in removing inspected roll of rayon.
- The S2A Unispeed Inspector is arranged with forward and reverse motion and this is controlled by a convenient hand lever. By means of the foot treadle, the operator stops and starts the machine; the hand lever determines the direction in which the cloth would move. The operator can in this way easily control the movement of the cloth in either direction and bring any imperfection within easy reach.
- The machines shown in the "General View of the Inspection Department" of the Hathaway Manufacturing Co. on page 13 of the May, 1952 issue of *Textile Age* are the same machines as the one illustrated above.

Send for Bulletin No. 345

Curtis & Marble MACHINE COMPANY WORCESTER, MASSACHUSETTS, U. S. A.

"Oh, that reminds me, B. J.— have you noticed that Swift's Soaps have excellent physical form?"

Take the textile men we know—just about everything seems to remind them of Swift's Soaps. While our illustration may be a slight exaggeration, reports from countless successful textile producers show a tremendous enthusiasm for Swift's Soaps. Here are some of the reasons why:

- **Swift's Soaps** are outstanding performers in dyeing, fulling, scouring and other specialized operations.
- **Swift's Soaps** feature the right soap product for *every* textile need.
- **Swift's Soaps** are characterized by excellent physical form . . . proper uniformity of composition.
- **Swift's Soaps** are backed by our years of specialized experience . . . readiness to apply our resources to help you solve your particular soap requirements.
- Swift's distribution points from coast to coast are strategically located to assure prompt delivery of these and other fine Swift's Soaps:

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PA.

visors are not entered in this category.

Most operations performed in the manufacture of knitted goods lend themselves very well to piece-work rates and can be calculated from time-study methods.

Where a worker performs an operation on 1 doz. garments in 12 min. and the basic wage rate is set at 85¢, the amount charged to the cost is 0.85 x 12 ÷ 60, or $0.17. Where time rates are paid, the weekly wage of the operator is divided by the number of units produced in one week. A knitter may be paid time rate because of poor-quality yarns.

If the weekly wage is $50 and 142 doz. are produced in 40 hr., the unit cost can be calculated at 5,000 ÷ 142, or $0.3521. Where teams of workers assemble garments, the combined weekly payroll is divided by the number of dozen produced in one week.

Learners' expenses, overtime pay, and incentive bonuses should not enter this section of the cost but should appear in the overhead expenses.

3. Overhead Expenses

These costs may be apportioned departmentally in a large mill to avoid encumbering a minor department, such as a shipping room, with the same burdens of overhead expenses as a major department such as knitting. The selling expenses may even be included in the general overhead costs in a small mill.

Many charges are necessary to production. All invoices other than those for raw materials are entered in a ledger and calculated for the period of 1 yr.

To fairly apportion overhead expenses to all styles, the most favorable method is to levy overhead expenses according to the direct-labor charges. A percentage of the direct-labor costs are added to the manufacturing cost to cover the costs incidental to production. The percentage to be added is calculated as (overhead expenses x 100) ÷ (annual direct-labor cost x 0.9).

If the annual direct-labor costs of a mill add up to $168,724 and the overhead expenses amount to $96,224, the amount added to the cost is—

$$\frac{96{,}224 \times 100}{168{,}724 \times 0.9}$$

or 63.2% of the direct-labor charge

If production increases and the overhead expenses remain stable, the percentage added to the cost could be reduced, with a resultant drop in the selling price.

4. Finishing Costs

Wet finishing is usually treated as a separate item where the process is

tough babies

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Ideal for mill and factory. Tapered or straight cans with heavy steel tube tops and bottom rings, durable steel bottoms. Made of rugged case-hardened FIBEROK featuring malleable iron hand holes. Also a complete line of FIBEROK baskets.

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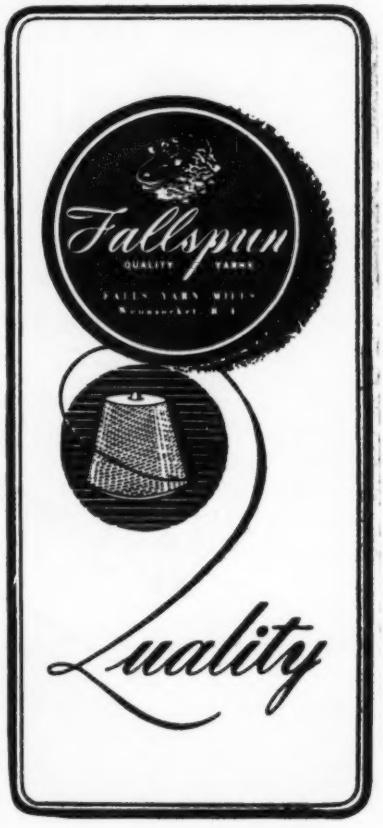

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ACETIC ANHYDRIDE

FOR ALL INDUSTRIES

New plant at Pampa, Texas can now provide dependable large volume supplies of Celanese* Acetic Anhydride

Manufacturers of dyestuffs, plasticizers, pharmaceuticals, plastics, textile processing compounds, can now look to Celanese for continuous supplies of acetic anhydride. New producing units in Texas and Canada will assure your industry of a productive capacity and flexibility to meet current demands as well as anticipate future industrial requirements for this important acetylating and dehydrating agent.

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CELANESE ACETIC ANHYDRIDE SPECIFICATIONS

Color APHA	10
Spec. Grav. 20°/20° C.	1.080-1.085
Acetic Anhydride, Min. %	97.5
Reducing Test	Pass Permanganate Test

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ACETIC ACID
ACETALDEHYDE
ACETIC ANHYDRIDE

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When a U. S. Representative visits your mill, he offers a world of useful data on MODERN traveler practice—plus the finest travelers it is possible to produce.

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Providence—Box 1187—Gaspee 1-0100

carried out by a commission finisher. Where the mill has its own dyehouse, the charge may be treated in a like manner. So many cents per pound or per dozen are entered on the cost sheet. This item should include dyeing, bleaching, scouring, shrinkproofing, napping, brushing, and printing but not final boarding and pressing.

5. Selling Expenses

Sales staff, advertising, commissions, sales-office rents and expenses will be expenses charged to selling and can be expressed as a percentage ratio of the total selling expenses to the total net sales. This percentage will be applied to the selling price.

6. Loss on Seconds

Hosiery mills have a greater percentage of seconds than other mills, and records should be kept of all seconds. A percentage to be added to the cost to cover this loss can be gained by subtracting the price obtained for the seconds from the price that would normally be obtained for these goods if they were perfect.

If the value of the seconds during a year totalled $3,860 out of total sales of $256,528 and these seconds would have sold for $5,242 if they had been of first quality, a percentage ratio can be computed as—

$$\frac{(5{,}242 - 3{,}860) \times 100}{256{,}528}$$

or 0.54% of the selling price

7. Profit

The amount of profit to be included in the selling price will vary according to the amount of capital invested, capital risk, competitive conditions, etc. Discount is deducted from the selling price, and both these items are calculated on the selling price, not the manufacturing costs.

For example: a 2% discount is allowed for cash settlement in 30 days, a profit is set for 10%, and the selling expense is calculated at 3%. The selling price is considered as 100%. If the manufacturing costs are calculated at $6.265, the selling price can be obtained as follows—

Selling price	=	100%
Selling expenses	= 3%	
Discount	= 2%	
Profit	= 10%	
		15%
Manufacturing cost		85%

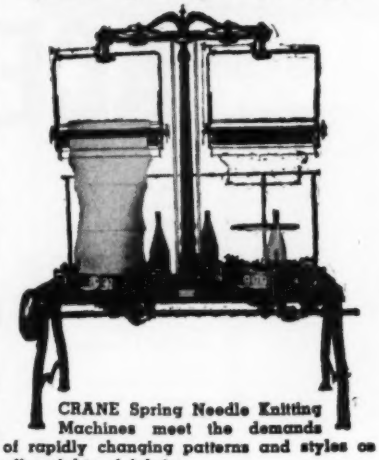
$$\text{Selling price} = \frac{6.265 \times 100}{85} \text{ or } \$7.37$$

The cost sheet is intended to arrange details in a compact manner to

1870 CRANE 1953

SPRING NEEDLE KNITTING MACHINES

Speed - Quality - Low Cost



CRANE Spring Needle Knitting Machines meet the demands of rapidly changing patterns and styles on all weights of fabrics.

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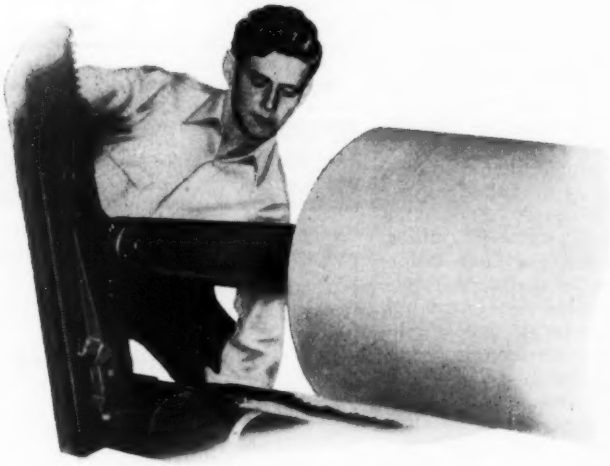

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It means you get tapes with the right strength, the right adhesion, the right flexibility for the job —because "Scotch" is the brand name for the world's most complete line of pressure-sensitive tapes. There are actually over 200 different tapes with the brand name, "Scotch".

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3M COMPANY

The term "Scotch" and the plaid design are registered trademarks for the more than 200 pressure-sensitive adhesive tapes made in U.S.A. by Minnesota Mining & Mfg. Co., St. Paul 6, Minn.—also makers of "Scotch" Sound Recording Tape, "Underseal" Rubberized Coating, "Scotchlite" Reflective Sheeting, "Safety-Walk" Non-slip Surfacing, "3M" Abrasives, "3M" Adhesives. General Export: 122 E. 42nd St., New York 17, N. Y. In Canada: London, Ont., Can.

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- Reamed 2-diameter Spindle Sleeve, no binding, close tolerances.
- Screws anchored in welded steel for maximum strength.
- Barrel is welded, light-weight, rust-proofed steel tubing.
- Special heat-treated screws will not shake loose.

Our salesmen will gladly explain how our spools are reducing costs in some of the world's largest mills. Write for particulars.

THE AKRON SPOOL & MANUFACTURING CO.

CUYAHOGA FALLS, OHIO
BOX 142

arrive at a suitable selling price. A cost sheet should be prepared for each style. It should be based on the costs that go into the production of the season's samples and should be worked out before the manufacturing season starts so that selling prices are developed for advance orders.

(The prices and rates used in this article are intended for illustrative purposes only.)

Vinyl-Coated Fabrics

(*Continued from page 141*)

according to the procedure of ASTM D676-42T, "Identification of Rubber by Means of the Durometer."

Tension Testing

Tests are made on the dry fused film.

Sample

For the comparative evaluation of development samples, stock films are prepared under the method previously described. Samples must be uniform in gauge and free of pin holes or other defects. Samples should be conditioned at least 24 hr. before testing. Conditioning is usually specified at 23° C. and 50% r.h., with testing being done under the same conditions. However, for evaluation to determine the comparative merits of laboratory development, sample conditioning at room temperature is sufficient if a conditioned room is not available. These tests may be made on a pendulum-type testing machine or on a constant-rate-of-loading-type testing machine such as the Scott Model IP4 Scrigraph.

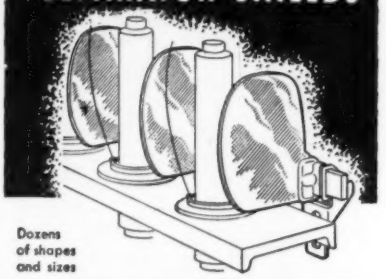
Breaking strength is the stress at the breaking point, determined in pounds per square inch. Ultimate elongation is the percent stretch at the breaking point.

The breaking strength and elongation at break are determined as specified by ASTM, Method D882-49T. With the pendulum-type machine, test Method B, "Constant Rate of Separation of the Jaws," is employed. Sample size normally specified is 1 in. x 5 in., with an initial jaw separation of 2 in. The speed of the powered jaw is 20 in. per min. Results are converted to pounds per square inch.

Tear Resistance

Tests are made on the film of the fused compound. The sample should be of uniform gauge and free of pin holes or other defects. The tear re-

Permalite ALUMINUM ALLOY
SEPARATOR SHIELDS



Dozens of shapes and sizes

BETTER YARN AT LESS COST

- Fewer ends down—some mills report 27% less
- Use two numbers lighter travelers for higher-strength yarn
- Polished aluminum blades stronger than steel—much lighter—cost less
- Non-slotted blades mean less wear on yarn, less lint, fewer slubs
- 7,000,000 in use by more than 400 mills

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WHITEHEAD ENGINEERING CO.
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specify DOW CORNING SILICONE GREASE 44 to reduce maintenance and increase the life of ball bearings operating at high temperatures

In the bearings of dryers, Dow Corning Silicone Grease 44 is used to reduce the relubrication schedule from once every 8 hours to once every 3 months. Operating temperatures are in the range of 350°F. Dow Corning Silicone Grease 44 Medium is now specified for all dryers in a large textile plant after 2 years of testing in National and Proctor & Schwartz machines.

In the bearings of Sanforizers. Experience in a large textile finishing plant indicates that Dow Corning Silicone Grease 44 can be used to reduce the relubrication schedule on main cylinder bearings from once every 8-hour shift to once every 30 to 45 shifts.

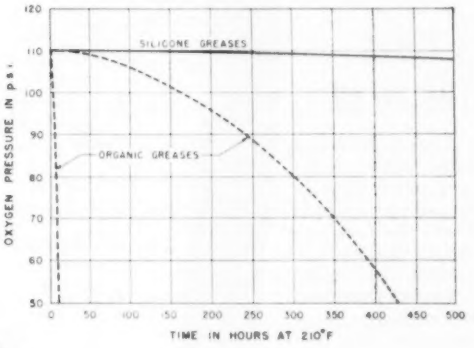
In the bearings of slashers. Two years of experience in textile mills indicates that Dow Corning Silicone Grease 44 Light has a service life of about 3 months at temperatures up to 350°F in closed-type Uxbridge Slashers.

In motor bearings, Dow Corning Silicone Grease 44 has many times the life of high temperature petroleum greases at temperatures in the range of 300° to 350°F. In permanently sealed or "cartridge" type bearings Dow Corning Silicone Grease 44 Light has a life expectancy of at least 5 years. That has been confirmed in thousands of motor bearings installed during the past 5 years by one of the major motor manufacturers.

In the bearings of oven conveyor systems, Dow Corning Silicone Grease 41 gives very satisfactory service even under conditions so severe that continuous, automatic oiling with the best high temperature organic lubricants could not keep bearings operable.

here's why . . . . . **1** Dow Corning Silicone Greases have extraordinary resistance to oxidation as indicated by the data given in Figure 1. After 500 hours of exposure to oxygen under a pressure of 110 psi at 210°F in contact with brass as a catalyst, a pressure loss of only 1.5 pounds was registered in the Norma-Hoffman bomb testing of these silicone greases.

OXIDATION RESISTANCE OF SILICONE AND ORGANIC GREASES IN THE PRESENCE OF BRASS AS INDICATED BY OXYGEN-BOMB TEST RESULTS



2 Dow Corning Silicone Greases show relatively little bleed or evaporation at temperatures in the range of 300-400°F as shown by the data given in Table I.

3 Dow Corning Silicone Grease 44 is serviceable at temperatures from —40 to 400°F in ball bearings having a maximum speed factor (bore in mm times rpm) of 150,000 to 225,000. The worked penetrometer (ASTM D217-48) for Dow Corning Silicone Grease 44 is: light consistency 300-320; medium, 250-270. Melting points are above 410°F; minimum flash point is 600°F. Ask for data sheet **AJ-2.**

TABLE I

RELATIVE BLEED AND EVAPORATION OF VARIOUS GREASES

Temperature in °F	Test[1]	Dow Corning Silicone Grease 44, Light Consistency	High Temperature Petroleum Greases A	B
300	Bleed, %	1.3	2.9	0.2
	Evaporation, %	0.6	2.9	13.4
	Total loss, %	1.9	5.8	13.6
390	Bleed, %	1.0	7.8	Nil
	Evaporation, %	3.5	15.4	39.8
	Total loss, %	4.5	23.2	39.8

[1]Values determined with equipment specified in AN-G-sa, except that test samples were held at test temperatures for 24 hours.

DOW CORNING CORPORATION DOW CORNING SILICONES **MIDLAND, MICHIGAN**

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In Canada: Fiberglas Canada Ltd., Toronto • In England: Midland Silicones Ltd., London

3 TIMES THE WEAR

Super-Stroke Picker Sticks outwear ordinary picker sticks on an average of 3 to 1! That's because the shock - resisting vulcanized fibre insert — bonded under heat and pressure — never separates from the wood! This patented design resists splitting and warping and triples the life of the stick. Available in all styles and sizes. Order today from

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Morris R. Copeland & Co., Griffin, Ga.

sistance is determined in accordance with the ASTM Method D10004-49T, "Tear Resistance of Plastic Film and Sheeting."

Plasticizer Volatility

Tests are made on the film of the dried fused compound. The method employed was developed by Emery Industries and standardized by the Society of the Plastics Industry. It was developed to eliminate the variables caused by the air-circulating oven, such as fluctuation of circulated air, contamination of circulated air by volatile plasticizer, and variations in temperature and degree of circulation in different parts of the oven.

Specimens

Disks of 2½ in. dia. are cut from the film. All disks should be of the same thickness and as uniform as possible. It is desirable that a press-molded sheet be used as standard for this test, if possible, to provide a uniform surface, since it has been found that films of the same composition and thickness vary in volatility as the result of changes in surface structure.

The determination is made in a metal paint can in an oven or bath at 70° C. ± 2° C.

Procedure

120 cc. of Columbia Activated Carbon, Grade AC, 6/14 mesh, is measured and spread evenly over the bottom of the can. One of the samples, accurately weighed, is placed on top of the carbon and covered with 120 cc. of the carbon. A second sample is placed in the can and covered with 120 cc. of carbon. A third sample is added and then 120 cc. of carbon to fill the can. The lid is placed on the can carefully so that the carbon is not packed. Care should also be taken to insure that the can is vented to relieve pressure built up during the heating. The can is placed upright in the heating unit at 70° C. for 24 hr. The can is removed, allowed to cool for 15 min., opened, the samples removed, brushed free of carbon, and weighed.

The loss of plasticizer is recorded in percentage of volatile matter on the basis of the total weight of the film.

Plasticizer Migration

This test is based on a tentative method developed by the Society of the Plastics Industry. The test is conducted at room temperature (between 70 and 75° F.) by placing a 3x5-in. sample of the sheeting on the test panel, then placing a 3x5-in. piece of window glass on the test sample,

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F&E DISINFECTS WHILE DEODORIZING

F & E kills many types of bacteria which cause disgusting odors. At the same time it transforms noxious vapors into a pleasant, agreeable atmosphere tinged with the invigorating scent of eucalyptus.

USE F & E SOLUTION around toilets and urinals . . . for flushing garbage receptacles and sick room accessories . . . for dressing room benches and lockers . . . wherever agreeable, high-speed deodorization is required.

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Reliance Spinning-Frame Motor drives the Saco-Lowell Gwaltney Spinning Frame.

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Saco-Lowell Recommends Reliance Motors for Your New Gwaltney Spinning Frames

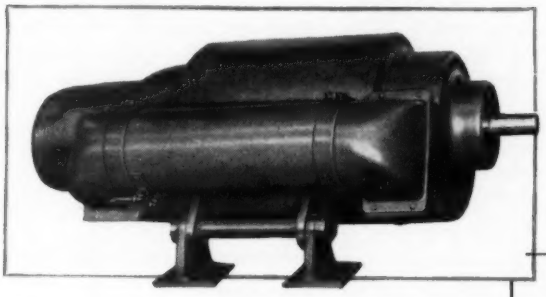
Reliance Totally-Enclosed Dual-Cooled Spinning-Frame Motors offer the advantages of water cooling without the disadvantages of conventional water-cooled motors. Heat is carried out of the room by water, thus reducing the load on the air-conditioning system. The unique Reliance cartridge-type heat exchanger which makes this possible can be removed for inspection or replaced by one man in three minutes without stopping the motor or disturbing its mounting.

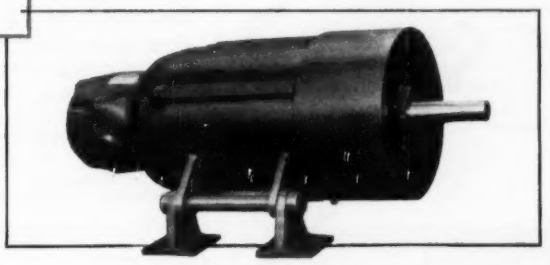
These a-c. motors have all features of Reliance PRECISION-BUILT Motors including the matchless Reliance pre-lubricated bearing . . ."You Can't Grease 'em Wrong".

For mills using air-cooled motors, Reliance offers a new totally-enclosed, fan-cooled design.

For more information, call one of the 52 convenient Reliance Sales Offices or write for Bulletins B-2301 and B-2302.

B-1453





(Above) Reliance Totally-Enclosed Dual-Cooled Spinning-Frame Motor. (Right) Reliance Totally-Enclosed Fan-Cooled Spinning-Frame Motor. Axial-flow fan blows cooling air over the motor and several yards beyond, eliminating any "hot spots". Smooth contours prevent accumulation of lint on motors.

RELIANCE ELECTRIC AND ENGINEERING CO.

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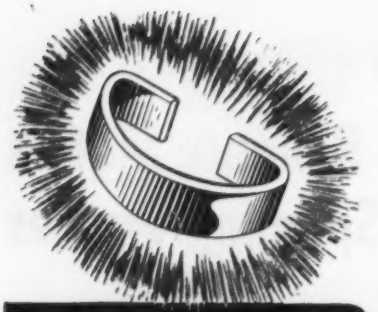

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CRAWFORD RHYMER, BOX 2261, GREENVILLE, S. C.

and then a 2-lb. weight on the glass. The assembly is examined daily for evidence of failure.

Preparation of Test Panels

The lacquer panels are prepared on mahogany veneer in the following manner:

1. One coat VS6993 Red Mahogany Stain
2. One coat 563-6821 Red Mahogany Filler
3. One coat 19366 Sealer
4. Two coats 14000 (Type F) Clear Duco
5. Rubbed and polished

These panels are prepared at Marshall Laboratory, Philadelphia, and may be obtained there. The varnished panels may be prepared by applying three coats of spar (Valspar) varnish to well-seasoned maple panels that are then rubbed and polished. All panels should be dried for a week.

Heat Stability

The heat stability, determined on the free film, is of value in comparing various coating compounds to determine which will be subject to minimum degradation in the fusing operation.

Procedure

These tests are best made on unpigmented stock or those pigmented in light colors, since the heat stability is determined by visual inspection of the amount of breakdown as evidenced by discoloration produced on heat exposure, ranging from light yellow to dark red or brown as the decomposition progresses. Dark colors tend to hide this discoloration. For comparison, all compounds must carry the same amount of identical pigmentation.

Five- to six-mil films are cast of stocks under comparison and fused at 350° F. for 5 min. First color comparison is made of the stocks as they come from the fusing oven. Three samples 1½x4 in. are cut from each stock and are placed in the circulating-air oven at 250° F. Samples are suspended by fine wires from the rack. A sample of each stock is removed at 10-min. intervals and judged for the amount of breakdown.

Blocking

Blocking is determined on the dry fused film.

Procedure

The procedure is based on the tentative method established by the SPI for nonrigid vinyl unsupported sheeting. This method of test is in accordance with ASTM D884-48, "Method for Estimating Blocking of Plastic Sheets," except that two 2-in. squares of the sheeting to be tested are placed face to face between two glass plates of the same size, with a 1-lb. weight resting on the top plate. This sandwich is then placed in the controlled-temperature oven at 180° F. for a period of 30 min.

Soapy-Water Extraction

Determined on the dry fused film.

Procedure

A sample, 4x4 in., is cut from the film. For comparison the films must be of the same thickness, since the percentages loss is affected by the thickness of the film extracted. The samples are conditioned in a circulating-air oven at 120°F. for 4 hr. and cooled in a dessicator. When they have cooled to room temperature, they are removed from the dessicator and weighed immediately. This weight is recorded as A.

Four hundred cc. of 1% solution of Ivory soap in distilled water is placed in a 1-qt. fruit jar, and the sample is suspended from the top by a fine wire so that it is completely submerged in the liquid. The jar is then placed in a constant-temperature oven, or water bath, at 120° F. for 24 hr. An individual jar is used for each sample.

After extraction, the sample is wiped dry with an absorbent cloth and again conditioned in the circulating-air oven for 4 hr. at 120° F., dessicated to room temperature, and immediately weighed upon removal from the dessicator. This weight is recorded as *B*. The percentage of extract is calculated by the following formula:

$$\% \text{ Extract} = \frac{(A - B)\ 100}{A}$$

Water Extraction

Determined on the dry fused film.

Procedure

The same procedure as for the soapy-water extraction is used except that distilled water is substituted for the Ivory-soap solution.

Gasoline Immersion

Made on the dry fused film.

Procedure

The procedure for preparing the sample, preconditioning, and initial weighing is the same as that outlined for a soapy-water extraction.

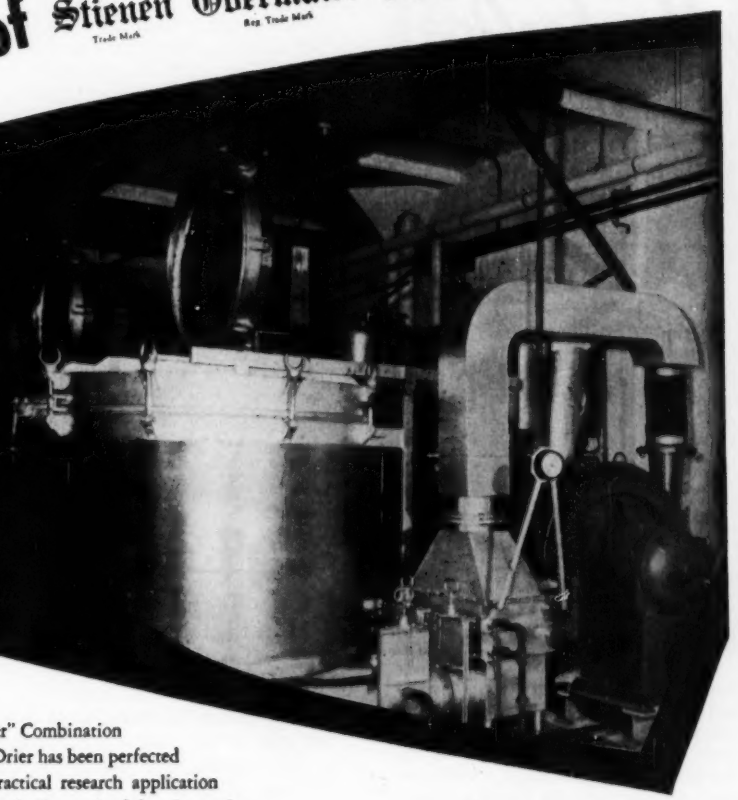
Four hundred cc. of lead-free gaso-

MORE PROOF of Stienen Obermaier leadership

Trade Mark Reg. Trade Mark

COMBINATION EXTRACTOR-DRIER*

Substantially reduces labor costs and cuts drying time in more than half.



The "Stienen-Obermaier" Combination High-Speed Extractor-Drier has been perfected after many years of practical research application and has been enthusiastically received by the entire trade. This new system of extracting and drying has cut the total drying time more than half over other systems and has proven a superior method to any other available for package drying. This Combination High-Speed Extractor-Drier can be utilized by even the smallest package dyer to great advantage.

The quick drying time means faster turnover of yarn in the dyehouse, eliminating bottlenecks, and cutting production time in half. This means half the required floor space and half the material carriers.

In actual operation, the material carrier is removed from the dyeing machine and placed in the extractor-drier. For average production, the entire operation is handled in this one machine requiring 1½ to 2 hours. For larger production, the same machine is used for extracting. Additional Port Driers are used to maintain the same high-speed drying results.

Submit your sample package to our laboratory and you shall receive exact data on your type of yarn.

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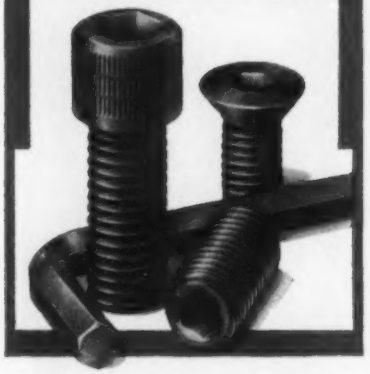

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ALLEN ○ HEAD CAP SCREWS: Permit more compact design. Clean "pressur-formd" sockets and burr-free threads speed assembly work.

ALLEN ○ HEX KEYS: Size marked and made from special Allenoy steel for greater strength. Chamfered ends for quicker, easier insertion.

line, with a boiling range of 100 to 286° F., is placed in a 1-qt. glass fruit jar. The sample is suspended from the top by a fine wire so that it is completely submerged in the liquid. The jar is then left at room temperature for seven days. At the end of this time, the sample is removed from the liquid, wiped dry with a soft cloth, suspended in the circulating-air oven at 150° F. for 16 hr., dessicated, and weighed. The weight loss is calculated in percentage as in the soapy-water-extraction test.

Oil Immersion

Made on the dry fused film.

Procedure

The procedure is the same as that employed for soapy-water extraction except that a light processing oil, such as Sun Oil Co. Circo oil, which has an aniline point at 70±2°C. and a Saybolt viscosity of 150±10 sec. at 100° F., is substituted for the soap solution.

Viscosity of plastisols and its control is extremely important in obtaining uniform coatings. The Brookfield Viscometer, manufactured by the Brookfield Engineering Laboratories, Inc., makes direct determinations in centipoises and can be used in both plant and laboratory. This instrument has been found well adapted for this purpose.

Of the tests discussed so far, breaking strength, elongation, tear strength, hardness, plasticizer migration, and blocking are usually determined on the coated fabric as well as on the coating compound. The last two are particularly important if top coats, Spanishes, or prints have been applied, since the lower-polyner resins, often used in these operations, may have a definite effect on these tests results. The first three tests form the backbone of the physical specifications of most coated fabrics. Some of the tests listed in the following section may also be made on the free film but usually are made only on the coating.

Evaluation of Coated Fabrics

Flammability

Determined on the coated fabric, since the fabric itself is a major factor in determining the extent of combustion.

Procedure

The tests are conducted in accordance with the method of ASTM D618-49T, Procedure A, "Specification for Fire-Retardant Properties of Treated Textile Fabrics."

Crocking

Determined on the coated fabric, crocking is the physical resistance to transfer of color when rubbed with a piece of white cloth. It is determined by the tentative method of the SPI for film, which was adapted from the methods of the AATCC for dyed cloth.

Procedure

The test is made with the AATCC Crockmeter, equipped with 2-in. squares of starch-free, white, bleached cotton cloth. Tests are made on both the wet and dry basis.

For the dry test, samples of the coated fabric are cut 2x5 in. and preconditioned for 72 hr. at 70°C., removed from the oven, placed in the dessicator, and cooled to room temperature. The test specimen is then removed from the dessicator and placed on the base of the crockmeter so as to rest flat on the abrasive cloth, with its long dimension in the direction of the rubbing.

The square of white cloth is mounted over the end of the finger that projects downward from the slide, with the weave oblique to the direction of rubbing, and is held in place with the spiral clip. The covered finger of the slide is then placed on the test specimen and is slid back and forth for 20 rubbings, i.e. for 10 steady turns of the crank at the rate of one turn per second.

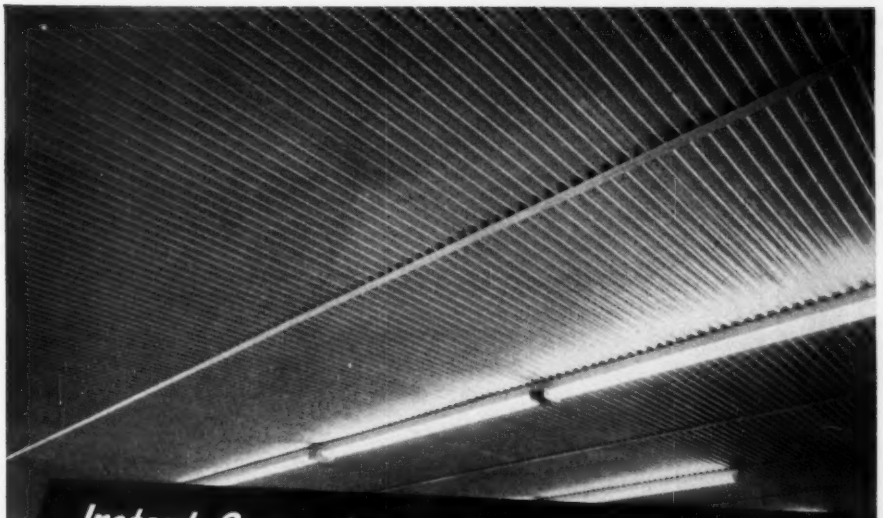
For wet crocking tests, the white testing square is thoroughly wet out in distilled water, squeezed, and then passed through a wringer between two sheets of filter paper just before use. Otherwise the procedure for wet crocking is exactly the same as for dry crocking.

Bias Strength

This test is useful to determine the strength of the coating independent of the fabric and as a control to insure that complete fusion of the coating has been obtained.

Procedure

Six 2x5-in. samples are cut from across the piece on the bias. They are tested on the pendulum-type machine. Two-inch jaws are used, and the initial jaw separation is 2 in. The speed



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Large perforated panels of Reynolds Aluminum attractively formed and finished, backed by sound absorbing material . . . that's the basis of this new acoustical system acclaimed as the first practical way to reduce dangerous and costly noise in large plant areas. Introduced only a few months ago, and with military needs limiting supply, installations already total millions of square feet . . . including some of the biggest names in industry. Outstanding acoustical architects are now specifying it! Read the advantages summarized here. Then write for literature.

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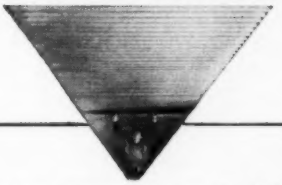

Low Cost. Low material cost; fast, labor-saving installation.

•

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•

Unlimited Access to utilities . . . any section movable at will.

•

Low Maintenance. Rustproof, non-staining panels removable for cleaning.

•

Fire Resistant. Both aluminum and sound-absorbent backing are incombustible.

•

Low Weight. Completed ceiling weighs less than one-half pound per square foot.

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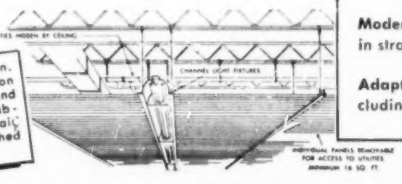
Modern Design. Eye-pleasing corrugations in straight-line or pattern effects.

•

Adaptability to any air-conditioning, including plenum chamber above panels.



Typical installation. Panels are supported on aluminum angles and T-sections. Sound-absorbing material is laid on panels or attached directly to ceiling.

FRANCHISED APPLICATORS

Contact nearest listed for engineering service, free estimates.

ALABAMA: Badham Insulation, Birmingham; Stokes Interiors, Mobile.

CALIFORNIA: Pacific Acoustics, Los Angeles; Sound Reduction, Oakland.

COLORADO: Danco, Inc., Denver.

CONNECTICUT: Wilson Construction Co., Hartford.

DISTRICT OF COLUMBIA: T. M. Woodall, Inc., Takoma Park.

FLORIDA: Standard Insulation, Fort Lauderdale; Cliff Haller, Orlando.

GEORGIA: Lewis & Co., Atlanta.

ILLINOIS: Anning-Johnson Co., Chicago.

INDIANA: Anning-Johnson Co., Indianapolis.

IOWA: Anning-Johnson Co., Des Moines.

KENTUCKY: Braun Acoustical Co., Louisville.

LOUISIANA: Walker Lloyd, Baton Rouge.

MAINE: Edw. F. Byrnes Co., Portland.

MARYLAND: Limbach Co., Hagerstown.

MASSACHUSETTS: Edw. F. Byrnes Co., Boston.

MICHIGAN: Nichols Co., Detroit; Harold R. Sobie Co., Grand Rapids.

MINNESOTA: Anning-Johnson Co., Minneapolis.

MISSISSIPPI: Stokes Interiors, Jackson.

MISSOURI: Hamilton Co., St. Louis; Stokes Co., Kansas City.

NEW JERSEY: Woolsulate, East Orange; W. M. Mayer Co., Quakerstown.

NEW MEXICO: Welch-Erwin, Albuquerque.

NEW YORK: Albany Acoustical Corp., Albany; A. P. Madden Co., Syracuse; Davis-Fetch, Buffalo, Rochester, Jamestown; Wm. J. Scully Corp., New York.

N. & S. CAROLINA: Bonitz Insulation, Greensboro, Columbia.

OHIO: Gellin Co., Cleveland; J. H. Archibald Co., Cincinnati.

OKLAHOMA: Ball Dist. & Eng. Co., Tulsa, Oklahoma City.

OREGON: Steward Griffith Co., Portland.

PENNSYLVANIA: Limbach Co., Pittsburgh; W. M. Mayer Co., Philadelphia.

TENNESSEE: Alexander Co., Memphis; John Beretta Co., Knoxville; Workman Co., Nashville.

TEXAS: C. F. Schilling Co., Houston; Gen'l Supply Co., San Antonio; Acoustic Builders Co., Dallas; Welch-Erwin, El Paso.

VIRGINIA: McL. T. O'Ferrell & Co., Richmond.

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WISCONSIN: DeGelleke Co., Milwaukee.

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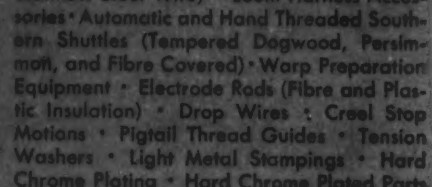
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of the powered jaw is 20 in. per min. Results are recorded in pounds.

Brittle Temperature

Made on the coated fabric or free fused film.

Procedure

Test is made according to the method of ASTM D746-44T.

Abrasion

Tests are made on the coated fabric. Abrasive tests to indicate the wearing quality of the coating are made on several different types of machines. It is difficult to obtain check results, particularly when stocks of different formulations are compared, because of the effect that the abraded stock has on the abrasive medium employed. There is a definite tendency for the abraded dust to cling to the surface of the abrasive medium and thus impair its efficiency. This tendency often varies with the type of stock. The Tabor and Wyzenbeek abraders are most commonly used.

Flexing and Folding

Several types of equipment have been used for these tests. For flexing, one rather common method is based on equipment originally developed by Chrysler Corp. for testing coated fabrics for automotive applications. This machine consists of two sets of jaws parallel to each other. One set is stationary; and the other, actuated by an eccentric, moves back and forth. The support for the stationary jaw is hinged at the bottom; so by applying weight to the attached lever, tension may be applied to the specimen under test.

Various mechanical folders have been devised. All consist of the same general principle wherein the sample is looped between two plates brought together and separated mechanically to create the fold.

Textile Calendar

AATT, one-day symposium and exhibit, Hotel Statler, New York, Feb. 3, 1953.

PTI Alumni Assn., mid-winter banquet Warwick Hotel, Philadelphia, Pa., Feb. 6, 1953.

AATCC, Mid-West Sect., Hotel Bismarck, Chicago, Ill., Feb. 14, 1953.

National Cotton Council, cotton research clinic, General Oglethorpe Hotel, Savannah, Ga., Feb. 18 to 20, 1953.

CATCC, Quebec Sect., McGill University, Montreal, Feb. 21, 1953.

AATCC, New York Sect., Hotel Statler, New York, Feb. 27, 1953.

AATT, monthly meeting, Builders Club, New York, March 4, 1953.

ASTM, Committee D-13, spring meeting, Park-Sheraton Hotel, New York, March 18 to 20, 1953.

CATCC, Quebec Sect., McGill University, Montreal, March 21, 1953.

ACMI, annual convention, Palm Beach Biltmore Hotel, Palm Beach, Fla., March 26 to 28, 1953.

AATT, monthly meeting, Builders Club, New York, April 1, 1953.

Alabama Cotton Mfrs. Assn., annual meeting, Buena Vista Hotel, Biloxi, Miss., April 9 to 11, 1953.

Carpet Fashion Bazaar, Carpet Institute, New York, April 13 to 23, 1953.

AATCC, New York Sect., Kohler's Swiss Chalet, Rochelle Park, N. J., April 17, 1953.

CATCC, Quebec Sect., annual meeting and dinner, Mount Royal Hotel, Montreal, April 17 and 18, 1953.

AATCC, Mid-West Sect., Netherland-Plaza Hotel, Cincinnati, Ohio, April 18, 1953.

Southern Assn. of Science and Industry, regional conference, New Orleans, La., April 20 and 21, 1953.

22nd AMA National Packaging Exposition, Navy Pier, Chicago, Ill., April 20 to 24, 1953.

Fiber Society, spring meeting, New Orleans, La., April 22 and 23, 1953.

Cotton Mfrs. Assn. of Georgia, annual convention, Boca Raton Hotel, Boca Raton, Fla., April 23 to 25, 1953.

Natl. Assn. of Hosiery Mfrs., annual convention and conference, Claridge Hotel, Atlantic City, N. J., April 27 and 28, 1953.

Knitting Arts Exhibition, Atlantic City Auditorium, Atlantic City, N. J., April 27 to May 1, 1953.

British Industries Fair, Castle Bromwich, Birmingham England, April 27 to May 8, 1953.

AATT, monthly meeting, Builders Club, New York, May 6, 1953.

Phi Psi Fraternity, 50th annual convention, Penn-Sheraton Hotel, Philadelphia, Pa., May 7 to 9, 1953.

Materials Handling Exposition, Convention Hall, Philadelphia, Pa., May 18 to 22, 1953.

AATCC, New York Sect., Kohler's Swiss Chalet, Rochelle Park, N. J., May 22, 1953.

Textile Institute, annual conference, Llandudno, North Wales, May 25 to 30, 1953.

American Society for Quality Control, Textile Div., Convention Hall, Philadelphia, Pa., May 27 to 29, 1953.

South Carolina Textile Mfrs. Assn., annual convention, Sea Island, Ga., May 28 to 30, 1953.

Canadian International Trade Fair, Exhibition Park, Toronto, Ont., Canada, June 1 to 12, 1953.

AATT, monthly meeting, Builders Club, New York, June 3, 1953.

STA, annual convention, Mayview Manor, Blowing Rock, N. C., June 18 to 20, 1953.

ASTM, annual meeting, Atlantic City, N. J., June 29 to July 3, 1953.

International Exposition of Fabrics, Fibers, Finishes, and Yarns, Waldorf-Astoria Hotel, New York, July 27 to 31, 1953.

Fiber Society, fall meeting, LTI, Lowell, Mass., Sept. 10 and 11, 1953.

AATCC, national convention, Conrad Hilton Hotel, Chicago, Ill., Sept. 17 to 19, 1953.

Packaging Institute, annual forum, Hotel Statler, New York, Oct. 12 to 14, 1953.

Textile Machinery and Accessories Exhibition, Belle Vue, Manchester, England, October 14 to 24, 1953.

North Carolina Textile Mfrs. Assn., annual meeting, Carolina Hotel, Pinehurst, N. C., Oct. 15 and 16, 1953.

1954

Knitting and Allied Crafts Exposition, Grand Central Palace, New York, April, 1954.

American Textile Machinery Exhibition, sponsored by American Textile Machinery Association, Atlantic City Auditorium, Atlantic City, N. J., April 26 to May 1, 1954.

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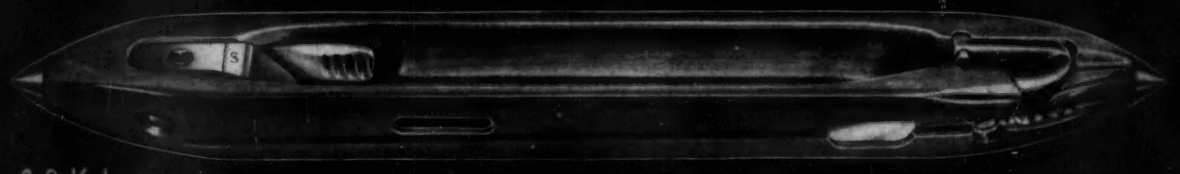
Besides possessing the faultless "Magnum Tip" design they possess such leading features as first pick tension eyes for every fabric. Improved heavy duty tension pads with patented features. These pads last longer than any other on the market. "Permaligne" Spring Assembly provides the best in bobbin alignment and minimum wear of grooves.



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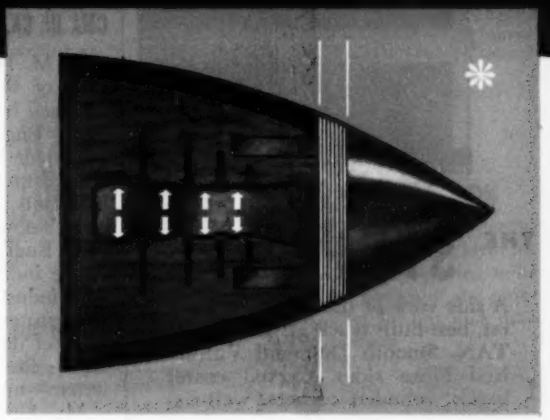
means "the Southern Tip gives a permanent grip". From tip insertion with pressure control plus the inclusion of multiple laminated washers and reverse taper of grooved "magnum shank", holding power has been increased immeasurably.* In addition to this there is the assurance of full compression between "magnum tip" and wood. Pressure control provides perfect alignment, a fact that is so necessary in securing stability required to prevent the usual movement that causes loosening of the tip. Be assured and rest assured with Southern.



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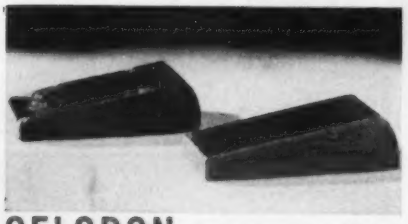

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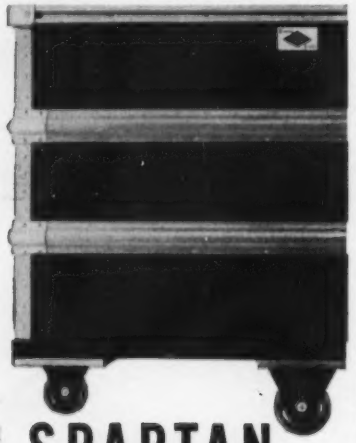

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News OF THE MONTH

SMITH MEDAL TO PROF. BALL

Prof. Herbert J. Ball, head of the department of engineering, Lowell Textile Institute, Lowell, Mass., is to receive the Harold DeWitt Smith Memorial Medal. Committee D-13 on Textile Materials, of the American Society for Testing Materials, will make the award at its March 19 meeting in the Park-Sheraton Hotel, New York.

The medal, a testimonial to the memory of the late Dr. Harold DeWitt Smith, was established in 1949 by Fabric Research Laboratories, Inc., of Boston, Mass. Prof. Ball, who was chairman of D-13 from 1930 to 1950, will be the fourth recipient of the medal.

CMA OF GA. SPEAKS UP

T. M. Forbes, executive vice president of the Cotton Mfrs. Assn. of Georgia, has the following to say on New England's recently expressed hopes for higher wage costs and increased unionization in Southern textile plants, the *Atlanta Journal* reports.

"It's obviously just another effort in New England to drag the Southern textile industry down to the level of their industry.

"Apparently they're doing this instead of doing as other businesses do under the American free-enterprise system—meet competition."

Mr. Forbes said the recent New England governors' report wishes to create, with the help of the government and an assist from labor unions, within the South the same conditions that are destroying the industry in New England.

DR. DILLON ON WOOL

Wool faces a real threat in the possibility of man's developing satisfactory blends of expensive synthetic wool-like hydrophobic fibers with relatively cheap hydrophilic viscose rayon, Dr. John H. Dillon, director of Textile Research Institute, told the American Assn. for the Advancement of Science at St. Louis at the year's end. The future of wool by itself, because of its higher and volatile price and uncertainties of availability, is not clear.

However, wool-like hydrophobic fibers are also high in price, and probably for the present they will serve mainly as blending ingredients for wool. This could very will result in expansion of the total market for wool by multiplication of its applications, he concluded.

12-DENIER HOSIERY

Next month will see the introduction of 12-den. nylons for women. Du Pont recently gave small amounts of 12-den. nylon yarn to a few hosiery manufacturers for evaluation purposes. Tests were successful enough to warrant going into limited commercial production this month.

If the new super-sheer hosiery sells well, more yarn of the finer number will be made available to hosiery manufacturers for general use. Manufacturers are welcoming the new yarn for use on 60- and 66-gauge knitters, while retailers think 12-den. hosiery will help boost nylon-hosiery sales beyond the record set by the year 1952.

AATT SYMPOSIUM

"New Textile Horizons Through Technology" is the theme of the one-day symposium to be held February 3 at the Hotel Statler, New York, under the auspices of the American Assn. of Textile Technologists.

Speakers and subjects at the morning technological-development session include Walter Scholer, manager, fabric-development department, American Viscose Corp., on apparel fabrics; Otto J. Haufe, research director, Turner Halsey Co., on home-furnishing fabrics; and Herbert R. Schwarz, director of research and fabric development, Wellington Sears Co., on industrial fabrics.

Marion R. Cross, president, Greenwood Mills, Inc., will address the group after the luncheon.

The afternoon session will be a panel-discussion, along the same lines as the morning talks, headed by C. W. Bendigo, American Cyanamid Co. Several exhibits will be displayed all day by suppliers to the textile industry.

CARD-WASTE RESEARCH

Six Southern mills have joined in the sponsorship of a $31,000 research project on reducing waste in cotton carding. The project has been begun at the School of Textiles, N. C. State

Five Du Pont Continuous Bleaching Systems that can help lower costs

CAPACITIES FROM 500 TO 7,500 LBS./HR.

Whether your mill is large or small, there's a Du Pont system to meet your space and production requirements.

Each system assures lower over-all cost, flexibility, and ease of operation and control. Leading mills everywhere have modernized with continuous bleaching. So join the trend to better bleaching . . . investigate Du Pont Continuous Bleaching Systems. The coupon below will bring you full details. E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Department, Wilmington 98, Delaware.

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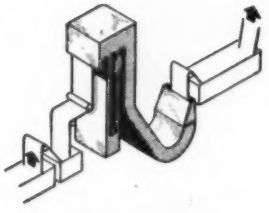
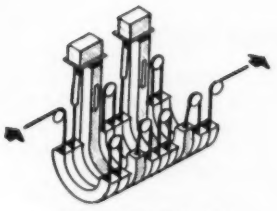
Rodney Hunt Machine Co., Orange, Mass.
Weisner-Rapp, Inc., Buffalo, N. Y.
Proctor & Schwartz, Inc., Philadelphia, Pa.



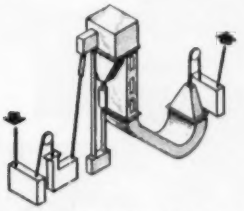
500 TO 1,000 LBS. HR.

Compact single-stage unit for the smaller plant or for specialty bleaching in larger plant. Handles cloth continuously at average rate of 75 yards per minute.



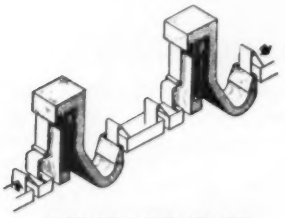
750 TO 1,500 LBS. HR.

Two-stage unit produces maximum yardage at lowest possible cost. One-man operation means savings in labor. Goods in the 3-7 yds./lb. class can be handled at 100 yds./min. speed.



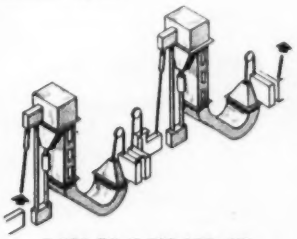
1,500 TO 3,000 LBS./HR.

Excellent arrangement for production requirements of 200,000 to 400,000 yds. weekly. Handles light and heavy constructions. Available in open-width design for goods that cannot be rope-processed.



2,000 TO 6,000 LBS./HR.

Flexible arrangement permits installation as single or two stage system. Requires only 325 to 500 sq. ft. floor space. Handles 75 to 125 yds./min. Matched units can be added to increase capacity.



3,000 TO 7,500 LBS./HR.

For large-scale bleaching of print cloths, terry toweling, colored yarn, shirting, etc. Can be designed to process up to 300 yds./min. Open-width design also available.

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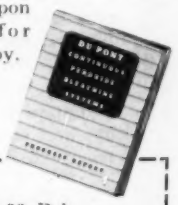

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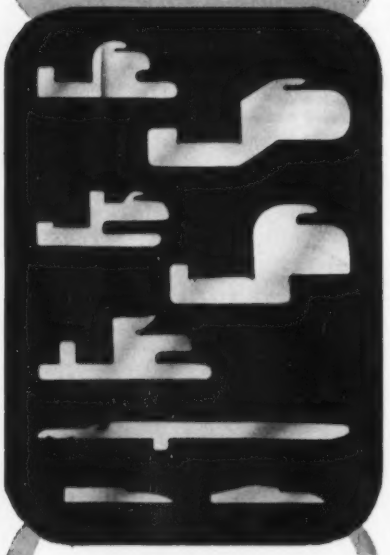
for Knitting the finest fabrics



IN ADDITION TO
Sliders; Sinkers; Jacks; Guides; Sley, Looper and Transfer Points . . . we *also manufacture* all known types of Spring Beard Needles for circular, full-fashioned and tricot knitting machines.

Complete line, all gauges and styles of Needles, Guides, Sinkers and Sley Points for Reiner, Avisco and Whitin Tricot machines. Also equipped for complete casting and squaring service for Tricot machines.

THE LOYAL T.
IVES
COMPANY, INC.
Established 1872
NEW BRUNSWICK, N. J.

NEWS *of the Month*

College, Raleigh, N. C., under the direction of Prof. J. F. Bogdan.

The object of the program is to explore more fully the application of the method discovered during the school's recent nep-reduction project, whereby neps were lessened and card waste appeared to be reduced by at least one-third when cards were speeded up. If the method is successfully developed, about 125,000 bales of cotton may be saved annually by U. S. mills, according to William A. Newell, research coordinator at the school.

About two years are foreseen as necessary to explore fully, on a wide range of cotton varieties and staple lengths, the application of the method developed. It is anticipated that increased knowledge will also be obtained on the flats-to-cylinder carding action.

ARMORED SHORTS

The protection offered combat troops in Korea by armored vests has proved so valuable, both as a minimizer of casualties and a booster of morale, that the Army has ordered 1,000 experimental armored shorts for delivery this month.

The new shorts weigh 4 lb. each. They are made of 12 layers of flexible, laminated nylon duck encased in a water-resistant plastic layer, with an outer covering of nylon fabric. They are worn over the regular combat trousers.

ACRILAN DYEING

The latest data on Acrilan dyeing were given by S. Jack Davis, manager of the technical-service department of Chemstrand Corp., at a recent Textile Distributors' Institute forum in New York:

Acid dyes: include a wide range of brilliant colors with good washfastness and crocking characteristics. Lightfastness not yet as good as similar dyes on wool. Union dyeings with wool possible in many shades.

Chrome dyes: must be used selectively, as some result in occasional off-shades on Acrilan. Those successfully applicable are generally excellent in light and washfastness. Union dyeings with wool not yet successful.

Premetallized dyes: may be used under practically normal wool conditions, making a range of colors with fastness properties intermediate between the acid and chrome dyes.

Selected azoic dyes: may be applied with beta-hydroxy naphthoic acid to yield colors of fair to good lightfastness and generally excellent washfastness.

Acetate dyes: moderate affinity. Readily applied from neutral solution at the boil. Lightfastness generally good and sometimes excellent. Union shades with viscose possible from cross-dyeing with acetates on the Acrilan and directs on the viscose.

Vat dyes: fair affinity. Most successfully applied in light shades as the sulfuric-acid esters of the reduced vats.

CHROMSPUN CHARACTERISTICS

Chromspun, the solution-dyed acetate yarn recently made available from Tennessee Eastman Co., New York, has six big advantages, according to George H. Hotte, technical director of the company, who spoke at a recent Textile Distributors' Institute forum. These advantages are excellent resistance to sunlight, washing, atmosphere fumes, perspiration, wet and dry crocking, and commercial cleaning fluids.

The "dope-dyed" yarn is currently available in both continuous-filament and staple forms, in a range respectively of 16 and 9 colors.

The new yarn also has excellent colorfastness to enzymes, and to chlorine, potassium-permanganate, and peroxide bleaching.

Treatments not normally recommended for acetate in general should be avoided, such as the use of Chromspun yarns in any type of fabrics that are to be vat dyed.

FABRIC STRUCTURE COUNTS

Warmth, shrinkage control, crease resistance, and other qualities can often be designed into fabrics by careful engineering of the fabric's geometry, Louis Weiner, chief of the textile-materials-engineering laboratory of the Philadelphia Quartermaster Depot, told 100 textile engineers at the ASME Textile Engineering Div. all-day meeting in New York. He showed some examples of fabric improvements that were recently made at PQMD.

Consumer demand for good function rather than high fashion alone should soon force mills into serious study of fabrics' constructional factors and their effect on function properties, Mr. Weiner concluded.

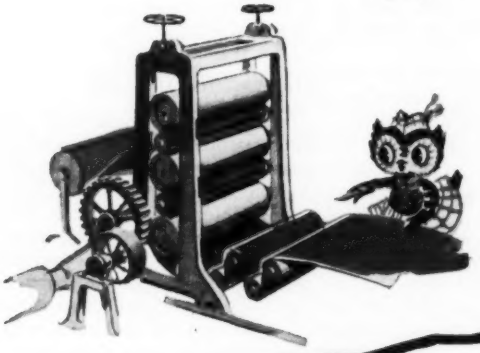
1953 ACRILAN PICTURE

Production of Acrilan will have increased substantially by the end of the first quarter of this year. At that time a balance will be reached between

All these
AT NEW LOW COST...

Stabilization

Crush Resistance



Glazing and Embossing—

with RHONITE R-2

To give you the greater economy and improved efficiency of RHONITE R-2 we have not sacrificed these other familiar RHONITE advantages—(1) storage stability; (2) easy handling; (3) excellent durability.

P. S. *It's a good finish for nylons, too.*

RHONITE *is a trademark Reg. U.S. Pat. Off. and in principal foreign countries.*

CHEMICALS FOR INDUSTRY

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

Complete Line of Instruments to measure and control

LIQUID LEVEL

Foxboro offers you *unbiased* recommendations on instruments to indicate, record, or control liquid level. Whether your problem involves turbulent, viscous, or corrosive liquids, in open or pressured vessels . . . whether bubble tube, differential pressure, float, or diaphragm box measuring systems are required — Foxboro offers the most efficient instruments for the job. Why not discuss your problem with a Foxboro engineer? Write **The Foxboro Company, 842 Norfolk St., Foxboro, Mass., U.S.A.**

FOXBORO
REG. U.S. PAT. OFF.
Instruments

NEWS *of the Month*

Chemstrand Corporation's accelerated machinery installation at Decatur, Ala., and the current availability of raw materials. By spring, full production at a rate of 30-million lb. annually should be reached.

Acrilan is being produced in 3 and 5 den., in bright and semi-dull lusters. Staple lengths between 1 and 5 in. can easily be produced. Commercial production of tow is expected in about a year.

Experience to date indicates that 50% or more of acrylic fibers are necessary to produce a blended fabric of maximum functional properties.

"SPOT-SHED" COTTON VELVET

Cotton velvet for furniture use has been made completely resistant to water and water-borne stains and highly resistant to crushing and spotting by a chemical treatment developed by Collins & Aikman Corp., New York. The fabric has been named Candalon "Spot-Shed" velvet. The treatment is not affected by cleaning, the passage of time, or use; and it does not affect the color or hand of the fabric.

The new velvet appeared for the first time on a number of furniture lines at the January Furniture Market in Chicago.

NEW ESCALATOR-CLAUSE BASE

Mills with escalator wage contracts are having to revise these contracts.

The new Consumers' Price Index (1947-49 = 100) became the official cost-of-living index in January. The old index (1935-39 = 100) was dropped by the Bureau of Labor Statistics in December.

The new index reflects changed consumer buying habits by including newer items such as television sets and frozen foods and by allowing a smaller portion of the family budget for food. The new base drops the index from around 190 to 115.

The effect will be less fluctuation. Food—which fluctuates most in price—now accounts for 10% less of the cost of living (30% instead of the former 40%).

SNIA VISCOSA CUTS PRICES

Snia Viscosa, Italian rayon manufacturer, has withdrawn from the standard cartel system set up by European synthetic-fiber manufacturers and intends to follow an independent export-price policy from now on.

The loss of export sales that has plagued Snia Viscosa for some time is said to have led to the decision. The result may mean substantial export price cutting by other European fiber manufacturers also.

It is interesting to note that the decision taken by the Italian company must certainly have been made with the approval of the British Courtaulds organization, which controls a majority of the Snia Viscosa stock.

NEW AATCC OFFICERS

By mail balloting, in which over 50% of its voting membership participated, the American Assn. of Textile Chemists and Colorists elected its 1953 officers. The new officers are:

President: J. Robert Bonnar, General Dyestuff Corp., New York, succeeding C. Norris Rabold, Erwin Mills, Inc., Cooleemee, N. C.

Vice Presidents: Arthur T. Brainerd, Ciba Co., Chicago; Arthur W. Etchells, Hellwig Dyeing Corp., Philadelphia; Samuel L. Hayes, Ciba Co., Charlotte, N. C.; and George O. Linberg, Synthron, Inc., Ashton, R. I.

FLAMMABILITY STANDARD

A preliminary interstate flammability standard went into effect at the end of January. The new standard, known officially as CS 191-53, will eventually bar from interstate commerce apparel fabrics that burn at a rate faster than the "standard" for that type of fabric contained in the regulation. The new Congress is expected to back the new voluntary regulation up with legislation with teeth in it.

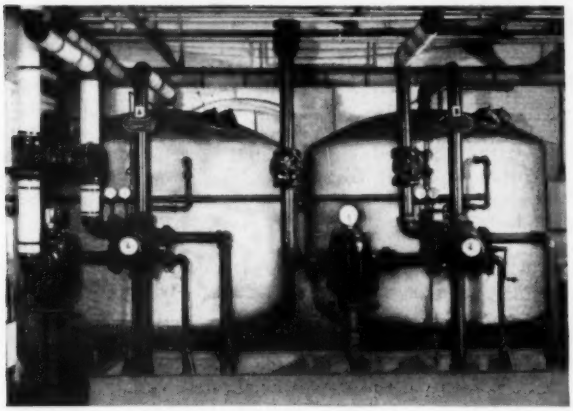
Organizations that aided most in the long-term drive to set up an equitable yardstick for apparel flammability include the AATCC, NRDGA, the National Bureau of Standards, and the U. S. Dept. of Commerce commodity-standards division.

Mimeographed copies of the flammability standard are available from the Commodity Standards Div., U. S. Dept. of Commerce, Washington 25, D. C.

NEW NAME FOR LTI.

A bill changing the name of Lowell Textile Institute to Lowell Technological Institute was filed with the legislature in Boston recently, at the request of President Martin J. Lydon.

The bill, filed jointly by representatives and senators from the Greater



HOW EMPIRE WORSTED MILLS SAVE $12,000 ANNUALLY

Empire's Water Supply—the Chadakoin Creek at Jamestown, N.Y.—became polluted. Color rose to 60 ppm and turbidity to 25 ppm, causing streaks, stains and off-shades. Inspector's insistence on quality increased re-runs. Water hardness of 6 grains added to these troubles—wasted soap and detergents. Boilers scaled and wasted fuel.

Permutit thoroughly studied these problems and installed the following: 4 Permutit Pressure Filters; Permutit Chemical Feeders for alum, alkali, and chlorine dosages; 2 Permutit Softeners filled with Permutit Q, the new high capacity zeolite.

Soft, clear water resulted—increasing dyeing output. Greater penetration and uniformity raised quality—saved dyestuffs. Seldom are lots re-run. Zero soft water reduced soap consumption, saved fuel by eliminating boiler scaling.

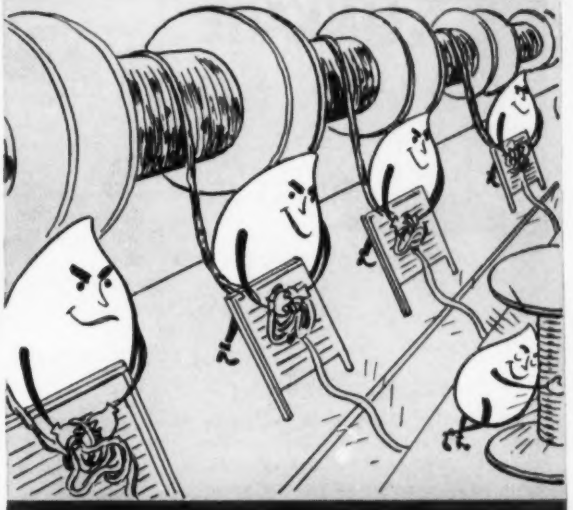
Best of all—this Permutit installation more than paid for itself in less than two years!

Better write today for complete information. THE PERMUTIT COMPANY, Dept. TW-2, 330 West 42nd Street, New York 36, N.Y., or Permutit Company of Canada Limited, 6975 Jeanne Mance Street, Montreal.

WATER CONDITIONING HEADQUARTERS FOR OVER 40 YEARS

PERMUTIT®

HOW TO GET FIBERS CLEAN



...Versene*

VERSENE* GETS THEM CLEAN

Completely clean **textile fibers present far fewer processing problems. Softer "hands" and whiter "bottoms" are the natural result, along with level dyeing and the elimination of iron, lead and other metallic stains. Versene softens hardest water thoroughly and *permanently*—*without* the formation of precipitates. Versene prevents the formation and deposition of insoluble soaps on textile fibers. Versene complexes, sequesters or chelates the metallic ion contaminants that have complicated wet processing problems for so many years.**

CHELATION — THE NEW CHEMISTRY

Chelation and the Versenes, through the exacting chemical control of cations in solution, are saving millions by preventing spoilage, improving quality and cutting process time. Woolens, Cottons and Synthetics all benefit.

FIND OUT ABOUT THE VERSENES

The Versenes are exceptionally stable at elevated temperatures throughout the pH range. Unduplicated and guaranteed for uniformity of quality and complexing power, they are made only by the Bersworth Chemical Company under processes originated, developed and patented by F. C. Bersworth. Available in wet or dry form they deserve your serious consideration. We will be glad to show you how to use them. Write Dept. D for Technical Bulletin #2. Ask for samples. Chemical Counsel on request.

VERSENE WATER TEST KIT. Tells Total Hardness in 2 minutes. Accurate to 1 grain per gallon. Versenate method. Complete with instructions $5.00 Postpaid.

KEY TO CHELATION

"Chemistry's most precise chemicals"

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W. Coast Agent: Griffin Chemical Co., San Francisco, Los Angeles
Midwest Agent: Kraft Chemical Co., Inc., 917 W. 18th Street, Chicago
Wasatch Chemical Co., Salt Lake City, Utah
Southwest Agents: Barada & Page, Inc., Dallas, Houston, Kansas City, etc.
Chas S. Tanner Co., 1815 Liberty Life Bldg., Charlotte, North Carolina

TENSION LINKAGE

WHAT'S THAT ?

Some designers have been asking us what we mean by the term "tension linkage." We use it to describe any chain application in which the linear movement of the chain is not continuous in direction. The predominant feature of a tension linkage application is that the chain need not be formed as an endless chain belt.

There is a wide variety of possible tension linkage applications.

here's an example

Reposition of a shaft that has been rotated through a limited angle. The shaft is turned clockwise (as shown in the illustration) during some operation of the associated equipment. The resulting compression of the spring provides the energy necessary to return the shaft to its original position. In many cases of this type, operation is frequent and high shock loads are encountered, so *chain* is the answer.

Our Bulletin No. 51-10 contains complete details on why Baldwin-Rex® Roller Chains, Leaf Chains and Block Chains are ideal for tension linkages. It also contains application examples and tables of weights, strengths and dimensions. Write Chain Belt Company, 346 Plainfield St., Springfield 2, Mass., for it today.

BALDWIN-REX

ROLLER CHAINS

A PRODUCT OF

Chain Belt COMPANY OF MILWAUKEE

District Sales Offices or Distributors in principal cities throughout the world.

NEWS *of the Month*

Lowell area, has the approval of the Institute's trustees, the students, and the alumni, who by a wide majority believe that the new name will be more representative to the public of the school's present curriculum.

The move in no way means that LTI is abandoning its position as a textile institute, but merely recognizes that recent broader engineering courses and degree-giving leather and paper courses have enlarged the school's scope of instruction.

NEW TARPAULIN FABRIC

A new fabric called Fiberthin that is lightweight, waterproof, tear- and snag-resistant has been developed and patented by U. S. Rubber Co., New York. Its primary use is seen in easy-to-handle tarpaulins for trucks, boats, farm equipment, and athletic fields; and as sails, various kinds of tents, and sleeping bags.

Fiberthin base fabric is woven of ribbon-like continuous multifilament yarns such as nylon, Orlon, or rayon. It is combined with coatings of natural rubber, synthetic rubber, or plastic to give it its needed "resistant" qualities.

The new fabric is said to remain strong and pliable at widely varying temperatures.

STRETCHABLE GLASS FABRIC

A glass fabric that stretches up to 70% elongation while the yarns remain uninjured has been developed by the industrial-products division of Hess Goldsmith & Co., Philadelphia, Pa.

The fabric's primary use is seen as a base for reinforced plastics in the low-pressure molding of products with compound curves: airplane wing tips, heating ducts, fenders, boat hulls, helmets and helmet liners, machine housings, and luggage.

Tests on 0.012-in.-thick fabric showed an average weight of 11.79 oz. per sq. yd., an average breaking load per inch of width warpwise of 567 lb. and fillingwise of 349 lb., resistance to temperatures up to 500° F., and imperviousness to most acids and most dilute alkalis.

WOOL-SUPPORT PROGRAM

The U. S. Department of Agriculture for 1953 has set up provisions for wool growers that are similar to those of last year's loan and purchase program on wool.

Non-recourse and advance loans on 1953 shorn wool will be available from May 1, 1953, to March 31, 1954. Non-recourse loans will mature April 30, 1954. Advance loans (not more than 70% of the shorn-wool appraised value) will be made on a recourse basis.

The 1953 price-support level is 90% of parity. The support-price figure will be announced about April 1.

The 1953 mohair support level has been set at 78% of parity.

TELEVISED SALES MEETING

A national sales meeting by theater television for dealers in 17 U. S. cities was recently held by James Lees & Sons Co., Bridgeport, Pa., the first televised program of its size by a primary textile organization.

The cost of the program was less than it would have been if the company had brought the dealers to a central location for an ordinary sales meeting, or if it had contacted all the dealers locally by means of sales calls at one time.

The carpet-manufacturing company made known on the closed-circuit program that it would spend $5½-million in capital improvement through June, 1954.

BONDED-WOOL LININGS

Pellon, a bonded wool fabric developed in Germany and the Netherlands, is the latest suit-lining and padding material to hit the U. S. market, via Pellon Corp. in New York. Similar to a satinlike blotting paper in appearance, the smooth material is warm yet porous, and crease resistant.

The new material can be handled like ordinary woven fabric. It is designed to replace conventional suit and coat linings and to give permanent contours to all types of garments where needed.

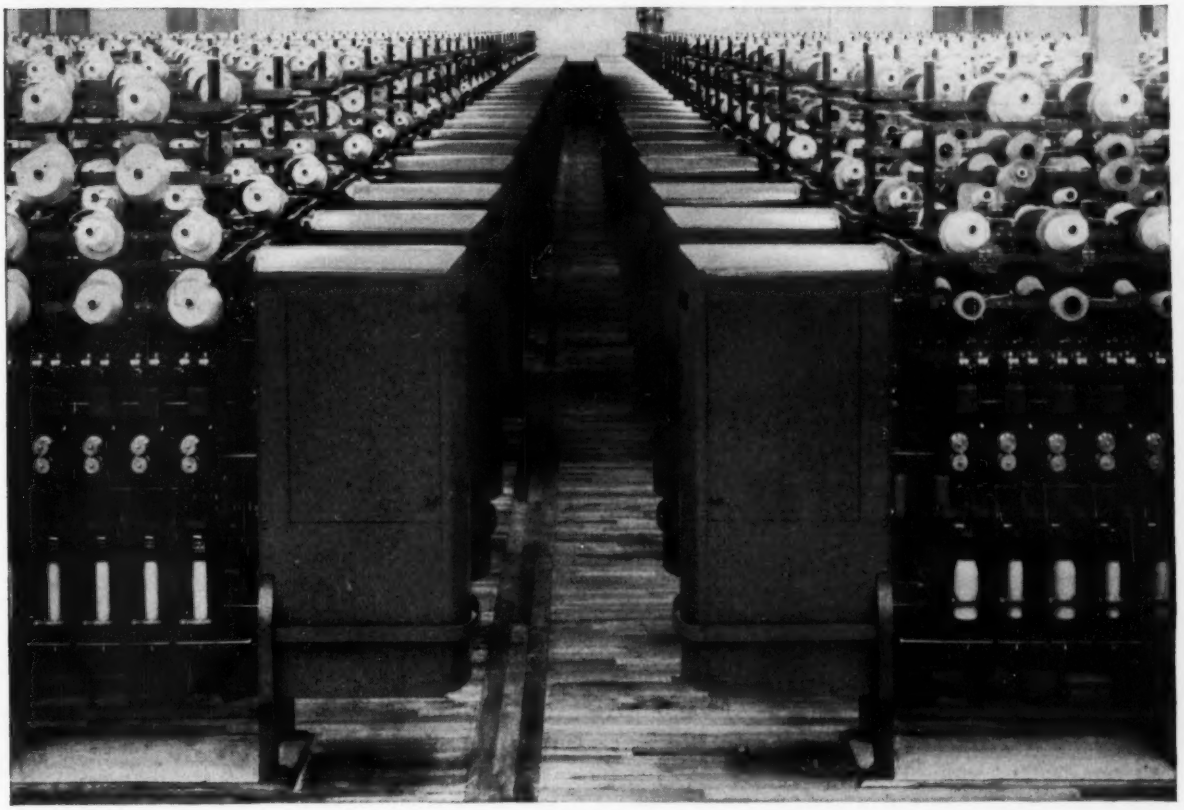
66-GAUGE HOSIERY

Starting in April and May, 66-gauge full-fashioned knitting machines will be in commercial production at Textile Machine Works, Reading, Pa. The new machines will have the latest knitting developments that were recently incorporated in the R-100 machine [TW, Nov., '52, p. 171] as well as the finer gauge.

Most important features of the new knitter are a speed of 100 courses a minute and the redesigning of over 20 components and motions of the slower model.

The R-100 66-gauge unit will sell for $36,100. Lace attachments will be available for an additional $1,650.

Why these SELL . . .



Fletcher MASTER-DUPLEX DOUBLER-TWISTERS

For FILAMENT *and* STAPLE YARNS:

RAYON
ACETATE
NYLON
COTTON
WOOL
WORSTED
GLASS
DACRON
ORLON
ACRILAN
DYNEL

Here are a few reasons why mills are choosing the new Fletcher Master-Duplex

LOW COST PRODUCTION
HIGH MACHINE EFFICIENCY
LOW MAINTENANCE COST
HIGH OPERATOR WORK LOADS
LOW PERCENTAGE OF WASTE
HIGH MACHINE VERSATILITY

Add to these HIGH QUALITY PRODUCTION and CLEAN YARNS on LARGE PACKAGES and we believe you will want to know more about the FLETCHER MASTER-DUPLEX DOUBLER-TWISTERS.

The fool proof individual thread STOP MOTION for both the single ends and plyed end is just one important feature that will appeal to you.

Please contact us today and let us show you why it will pay you to buy "FLETCHERS".

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EFFICIENCY WILL RISE

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Nothing removes starch as efficiently as improved Exsize-T! This great desizing agent works with greater speed, safety and uniformity!

Not a chemical! Exsize-T is a liquid enzyme especially manufactured for the textile trade.

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PABST BREWERIES

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PABST SALES COMPANY

221 N. La Salle Street

CHICAGO 1, ILLINOIS

*Copr. 1952, Pabst Brewing Company, Milwaukee, Wisconsin.

NEWS ABOUT *Suppliers*

Equipment Suppliers

Allis-Chalmers Mfg. Co., Milwaukee, Wis., has appointed R. H. Cline manager at the district office of its General Machinery Div., Charlotte, N. C.

The Baker-Raulang Co., Baker Industrial Truck Div., Cleveland, Ohio, has made three appointments to the sales staff. E. E. McVeigh was named manager of commercial sales, with the responsibility of directing all dealer activities in Baker's Western Div. and the supervision of application engineering projects. R. T. Tiebout was named manager of government sales. Edmund C. Horman was made regional sales manager for the New York metropolitan area.

The Bassick Co., Bridgeport, Conn., has added Gerald Walter to its Detroit office as sales engineer. Mr. Walter will work with customers and distributors of Bassick casters and will handle technical details when casters are required for specialized service and application.

Crompton & Knowles Loom Works, Worcester, Mass., has announced the retirement of H. Frank Phelps on December 31, 1952, from active employment with the loom works at Philadelphia after 53 years of service. James Hewitt, Jr., has succeeded Mr. Phelps as manager at Philadelphia.

William R. Fox, Providence, R. I., has been appointed New England agent for the following firms: Ragan Ring Co., Atlanta, Ga., spinning and twister rings; Russell A. Singleton & Sons, Blanco, Texas, long-draft aprons.

The John Hewson Co., New York, N. Y., has appointed A. R. Hough Co., Knoxville, Tenn., as its representative for sales, field application, and servicing of its line of electrical testing equipment and supplies.

Hyster Co., Portland, Ore., has made Thomas R. Hazel head of the Standards Div., Design Engineering Dept.

BURREL C. COLE is president of the newly formed Cole Engineering Corp., Columbus, Ga. The company absorbed Precision Rolls Co., which has developed a new line of top rolls and will sell through Medley Mfg. Co.

Karl Lieberknecht, Inc., Reading, Pa., celebrated its 25th anniversary recently at a dinner for company executives and foremen. Albert Friedmann, president, reviewed the progress made by the firm since its founding.

Meadows Mfg. Co., Atlanta, Ga., has appointed G. P. Stanley of Greenville, S. C., sales representative for South Carolina.

Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., recently appointed Paul B. Wishart to the newly created position of general manager. He has also been elected to the board of directors.

Multi-Clean Products, Inc., St. Paul, Minn., has purchased the Floor Sanding Machine Div., Lincoln-Schlueter Floor Machinery Co., Chicago, Ill. Manufacturing operations are being transferred to the Multi-Clean factory in St. Paul.

Riggs & Lombard, Inc., Lowell, Mass., has announced the resignation of Forrest C. Ames, formerly sales manager of the firm.

SCOTT TESTERS, INC.

announce the appointment of

SCOTT TESTERS (SOUTHERN) INC.
. . as the only authorized auxiliary source of Servicing, Parts and Supplies for users of Scott testing equipment

Located at

216 Riedville Road, Spartanburg, S. C.

MACHINE SHOP capable of repairing and rebuilding, or converting to the "Accr-O-Meter".

COMPLETE STOCK of factory-made parts and supplies.

FACTORY-TRAINED PERSONNEL capable of traveling to users' plants for on-the-spot repairs.

Manager: John Hargreaves.

Open For Business March 1, 1953

Requests for servicing, parts and supplies may be made direct to Spartanburg by users nearer that source.

SCOTT TESTERS, INC., 95 BLACKSTONE ST., PROVIDENCE 5, R. I.

Scott Testers — Standard of the World

S.A. Officina Meccanica

SANT' ANDREA

NOVARA, ITALY

The ever increasing use of long staple synthetics and blends calls for the use of the proper machinery and equipment.

We recommend:

for adequate blending:

SANT' ANDREA MIXING INTERSECTING GILL BOXES, Model SLM

for cleaning:

SANT' ANDREA RECTILINEAR COMBING MACHINES, Models PN and PNA

for gilling and reducing:

SANT' ANDREA INTERSECTING GILL BOXES, Models SLOV and SLAOV

for long draft roving:

SANT' ANDREA GILL FLYER, Model BP

for long draft spinning:

SANT' ANDREA RING SPINNING FRAMES Models FL1, FL2, FL3, FL4, FLM

for twisting:

SANT' ANDREA TWISTERS
(all models including flammé)

More than 30 years experience in all phases of long staple fiber processing.

Over 200 machines in operation in the United States and Canada.

Agents for U.S.A. and Canada

ERNEST L. FRANKL ASSOCIATES

22 East 40th Street
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News About SUPPLIERS (Continued)

Sonoco Products Co., Hartsville, S. C., has made plans for a $750,000 expansion in Brantford, Ont. The project will include a $400,000 addition to the present plant and $350,000 for new equipment. The contract for the new building was let to Schultz Construction Co. Ltd., Brantford. Construction is under way.

U S Bobbin & Shuttle Co. Lawrence, Mass., has made three additions to the sales staff: James E. Oliver, sales engineer for the Warper Beam Div., Julian T. Pool, sales representative, working out of Macon, Ga., and covering Georgia, Alabama, and Louisiana; and M. L. Johnston, sales representative for the eastern Carolina and eastern Virginia territory.

Wagner Electric Corp., St. Louis, Mo., has appointed John T. Kemper manager of the Boston Electrical Div. office. He succeeds M. E. Comstock, who is retiring after nearly 34 years' service.

Watson-Williams Mfg. Co., Millbury, Mass., has appointed Sutton M. Ebert sales representative for Pennsylvania, New Jersey, and Maryland. Mr. Ebert's address is Box 7144, Elkins Park, Philadelphia, Pa.

Troy Whitehead, Inc., Charlotte, N. C.—Troy Whitehead plans to re-enter the textile-machinery business following issuance of a charter for the new firm. The charter lists Mr. Whitehead and Attorneys H. B. Campbell and J. T. Randleman as stockholders. Authorized capital stock is $300,000.

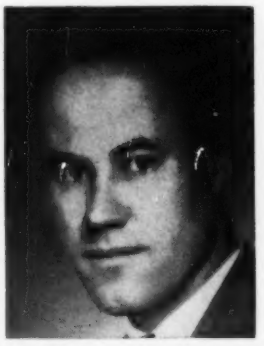
Yale & Towne Mfg. Co., Philadelphia, Pa., has appointed Michael F. Ryan production manager for the Philadelphia plant. In addition to his new duties, Mr. Ryan will continue to be responsible for outside subcontracting work.

Chemical & Yarn Suppliers

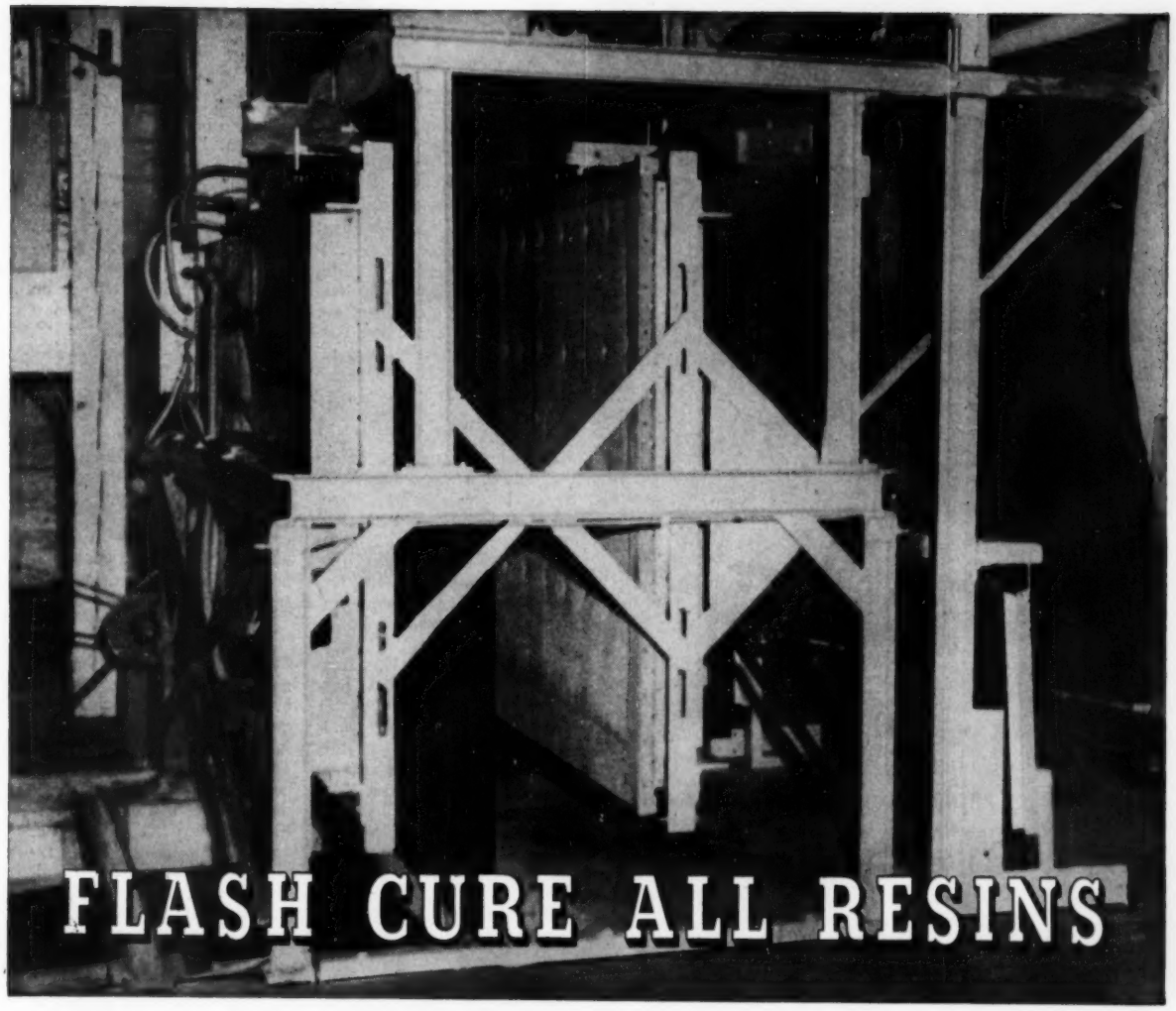
Allied Chemical & Dye Corp., Solvay Process Div., New York, N. Y., has appointed Carlton Bates executive vice president. Mr. Bates was appointed a vice president in July, 1951. He will continue to make his headquarters at the company's executive offices in New York City.

Amalgamated Chemical Corp., Philadelphia, Pa., has announced the development of a one-bath scour and dye system for nylon hosiery. The new system is said to offer results equal to conventional two-bath processes without sacrificing production quality. According to the company, extensive mill tests have shown satisfactory dyeing results.

American Enka Corp., New York, N. Y., will expand facilities for the production of viscose yarn at Lowland, Tenn. Work will begin at once and is expected to be completed by the end of 1953. The program is expected to cost approximately $4 million. New facilities will be primarily for the purpose of increasing viscose capacity and will involve expanded chemical facilities, some new buildings, and power



WILLIAM W. WINKLER (left) has been elected president of Durant Mfg. Co., Milwaukee, Wis. ROBERT B. WINKLER (right) is the new vice president.



in a single pass operation

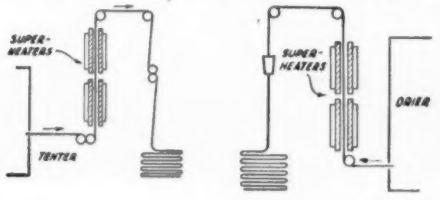
NO CURE BOX is necessary with black radiant heat . . . just dry and cure in tandem on the drier.

TO GET THE FASTEST POSSIBLE CURING on resinous finishes, place Fibre Glass Super-Heaters at the delivery end of **present equipment.**

RESINS completely absorb this black radiant heat providing a 100% cure. The cloth emerges with an excellent "hand" and a resin retention as high as desired.

THE NUMBER OF SUPER-HEATERS is determined by the speed of operation. Six feet of heat usually gives a curing speed of 20 to 25 yards per minute.

AVOID NEEDLESS CLOTH-HANDLING in favor of tandem operations. Curing with Super-Heaters makes operations truly economical.



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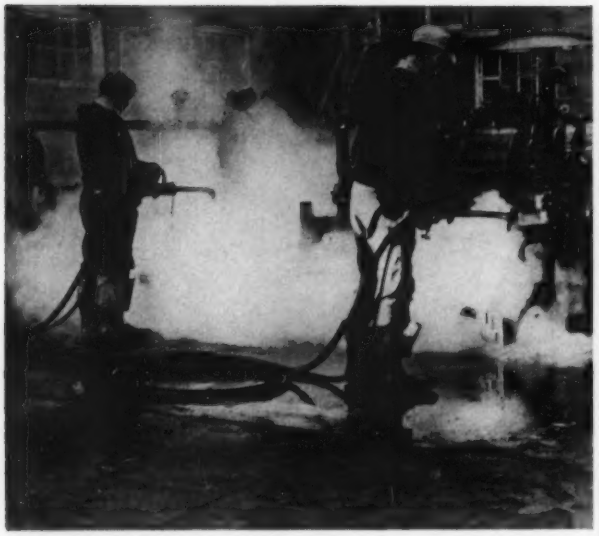

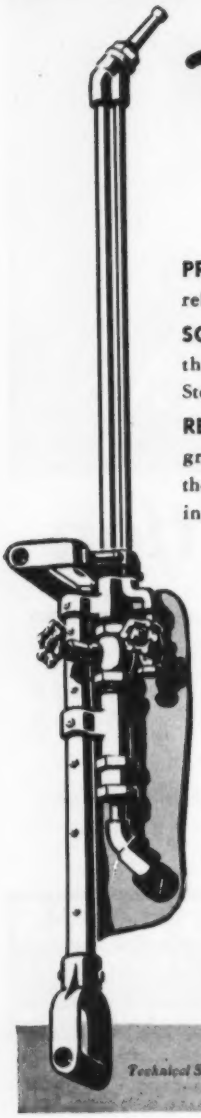

BLAST
equipment clean

PROBLEM: Cleaning 900 looms before rebuilding.

SOLUTION: Oakite Penetrant, applied through the Oakite Solution-Lifting Steam-Gun, using the mill's steam supply.

RESULTS: Loom frames stripped of grease, muck, even paint in one-fourth of the usual time—and without handscraping, brushing, scrubbing.

This Oakite Steam-Gun hits dirt with heat, force, powerful Oakite detergent. Cleans everywhere ... removes even the heaviest soils. Can't be beat for cleaning loom heads, slasher drums, spinning and twisting machines, unit heaters, etc.

FREE FOLDER gives details. Write Oakite Products, Inc., 42 Rector St., New York 6, N. Y.

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News About SUPPLIERS (Continued)

facilities. The expansion, when completed, will provide work for approximately 150 new employees.

American Viscose Corp., Philadelphia, Pa., has promoted Norman A. Cocke, Jr., to district sales manager at Charlotte, N. C. Mr. Cocke, who was named assistant manager of the Charlotte office last spring, succeeds Henry K. Kelly, who retired on Dec. 31.

Armour & Co., Chicago, Ill., has announced that Ken Wattman, chemical engineer, joined the staff as a representative in the technical sales-service department. A. E. Barrett will continue in technical sales-service as a field technical representative, calling on the textile industry in the Eastern and Northeastern states.

Atlantic Chemical Co., Inc., Centredale, R. I., has purchased controlling interest in Metro Dyestuff Corp., Quidnick, R. I. Because of this move, Atlantic has changed its name to Metro-Atlantic, Inc. The Canadian subsidiary of Metro-Atlantic, Inc., will be known as Metro-Atlantic (Canada) Ltd., instead of Roxbury Chemical Company - Canada - Ltd., the former name. Both changes took effect Jan. 1.

Boger & Crawford, Philadelphia, Pa., has named Morris Copeland of Morris R. Copeland & Sons to represent the company in Georgia, Tennessee, and Alabama.

Celanese Corp. of America, New York, N. Y., has announced that Robinson Ord has been named vice president of Canadian Chemical & Cellulose Co. Ltd. and vice president and general manager of Canadian Chemical Co. Ltd. Mr. Ord took over his new duties Jan. 1 and will make his headquarters in Montreal.

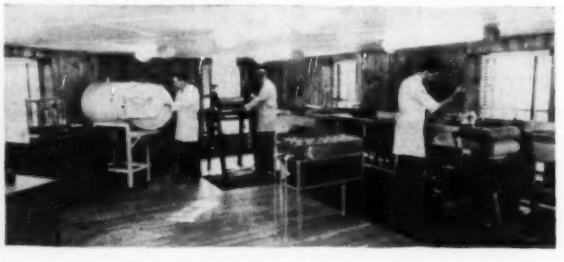
E. I. du Pont de Nemours & Co., Inc., Wilmington, Del., will build a laboratory for research and development work on Dacron polyester fiber on the site of the company's new fiber plant at Kinston, N. C. Scheduled for completion late in 1954, the two-story structure, to be built at a cost of more than $3 million, will be part of the Textile Fibers Dept. technical division. It will house offices, research laboratories, and semi-works equipment required for basic and exploratory research on Dacron. Approximately 55 technical men will be assigned to the new facilities.

B. F. Goodrich Chemical Co., Cleveland, Ohio, has announced that Merle F. Schreurs has joined its plastics-materials group to head the practical fabric-coating techniques and processes section. His experience in fabric-coating techniques was obtained at Textileather Corp., Toledo, Ohio, and as technical director at Industrial Ovens, Inc., Cleveland.

The Hart Products Corp., New York, N. Y., has appointed Thomas R. Scanlan, Jr., as salesman in the Pennsylvania, Maryland, and South Jersey territories. He will assist Thomas H. Hart.

Percy A. Legge, Yarns, Boston, Mass., has reopened its Greensboro, N. C., office at 710 W. Market St. G. Lawrence Wagoner has been appointed district manager.

Reichhold Chemicals, Inc., New York, N. Y., has ap-



COLOR-MATCHING service for customers and dyestuff standardization will be performed in this new laboratory, part of the Hilton-Davis Chemical Co. building in Boston, Mass.

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Here are Talcott tonics for your business.

We specialize in specific solutions to chronic problems where financing and credit are concerned.

Why not find out how Talcott can brighten your profit picture—and cure working capital headaches?

Just contact Department M. No obligation, of course.

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15,550,000 FEET OF *HOLT* MAPLE FLOORING!

Have gone into textile mills throughout the country since 1920 — with complete satisfaction to the mill operators.

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are Chainstitch and Overlock Machines of world-wide reputation, designed for latest requirements.

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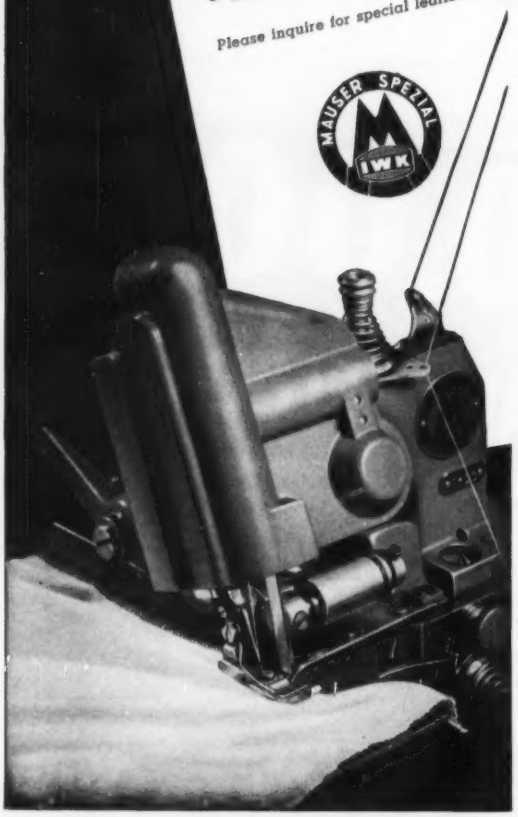

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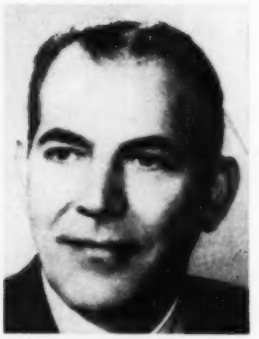
News About **SUPPLIERS** (Continued)

DR. MAX E. BRETSCHGER has been elected president of Buffalo Electro-Chemical Co., Inc. Frederick A. Gilbert has been elevated to the vice presidency.



L. J. CARSON has been made general manager of the new Colmar, Pa., plant of Link-Belt Co. The plant will make conveying equipment for industries.

pointed Archie H. Dean sales manager of its newly formed Specialty Products Div. Donald G. Patterson has been made technical assistant on resins and plastics. Mr. Patterson will establish liaison between the company's plants and laboratories, with particular attention to RCI's new series of polyester resins for reinforced plastics and textile resins.

Southern Dyestuff Corp., Charlotte, N. C., has announced that John L. Crist, president and treasurer since 1936, has been elevated to chairman of the board and treasurer. Leland G. Atkins, co-founder with Mr. Crist and vice president, becomes president, and John L. Crist, Jr., has been named vice president and sales manager. Other changes include Dr. Raphael E. Rupp and Feaster V. Tribble as director of sales service and manager of sales service, respectively, of Sodyeco Sales organization.

Warwick Chemical Co. Div., Sun Chemical Corp., Long Island City, N. Y., has appointed Ira S. Hurd director of sales promotion. The appointment centralizes all phases of the company's promotional activities under Mr. Hurd's direction.

Whittaker, Clark & Daniels, Inc., New York, N. Y., has appointed Robert T. Smith executive salesman. Clarence Driscoll, Connecticut area sales representative of Whittaker, who has been recovering from an operation and illness since July, is now slowly on the mend.

Other Services

Bersworth Chemical Co., Framingham, Mass., has established a Bersworth Fellowship in chelate chemistry. The new fellowship provides for one year of graduate study and research at any accredited institution of the student's choice in the U. S., or under the jurisdiction thereof. It is open to all U. S. citizens who have completed at least one year of graduate study and are currently working toward their Doctorates in any major branch of science. The stipend is $3,500, payable in advance. The selection and advisory committee will announce the first award in the spring.

Lowell Textile Institute, Lowell, Mass., is the recipient of the Arthur Besse Memorial Trust award. The two $500 scholarships went to Othon J. Mavro of Allston, Mass., and James L. Stanley of Lowell, Mass., students at LTI, according to F. W. Tipper, F. W. Tipper & Co., New York, N. Y., chairman of the Memorial trustees. Mr. Mavro, class of 1954, is, according to LTI, an outstanding student in the woolen and worsted course. Mr. Stanley, class of 1955, also was cited for his excellent work in the woolen and worsted department of the Massachusetts school.

What happened when *KLEENAKARB* was demonstrated at Greenville?

One after another, textile executives were amazed when they saw the remarkable KLEENAKARB 'before-and-after' Cold Dip parts cleaning demonstration. Valves, gears and typical loom parts —dried and caked with grease, oil, dirt and lint—were Cold Dipped in KLEENAKARB. The story was always the same. Each part emerged with a brand new look, thoroughly clean inside and out . . . with a longer life ahead.

How you can make this amazing 'before & after' test in your own mill:

Before **KLEENAKARB** dip.

After **KLEENAKARB** dip.

The Selig Company has developed, for those who wish to test KLEENAKARB on their own equipment, a **12-GAL. KLEENAKARB TRIAL KIT.** The kit consists of 10-gallons of KLEENAKARB with dipping basket and is available at nominal cost. Price and full information furnished upon request.

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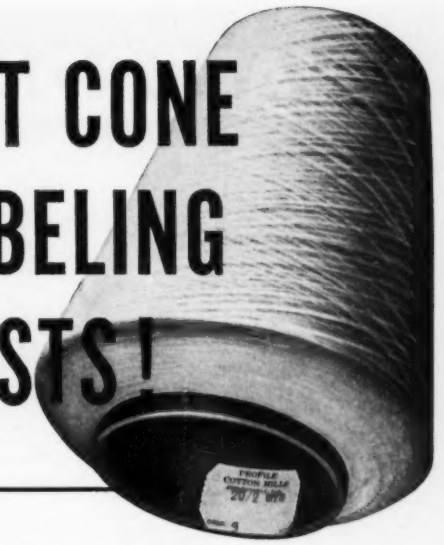

Print Your Own Labels the SOABAR Way!

Cone labeling is *fast, inexpensive* when you print Soabar gummed labels . . . right in your own plant . . . on the Model 20 Self-Stop Label Marker. You eliminate costly inventories of pre-printed labels . . . stop wastage . . . by printing only as many labels as you want . . . when you want them . . . with the *exact* information needed.

The easy-to-operate Model 20 Marker prints and counts 170 labels per minute with lot number, yarn count, color, operator's number . . . all the information you want, in one high-speed operation! Printed labels are automatically rewound in rolls, and attaching is easy with Soabar's "Jiffy Label Moistener". Labels are available in three sizes.

For further information on this cost-cutting, time-saving labeling method, just fill in and mail the coupon.

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Yes, I would like more information on cone labeling with Soabar gummed labels and the Model 20 Marker.

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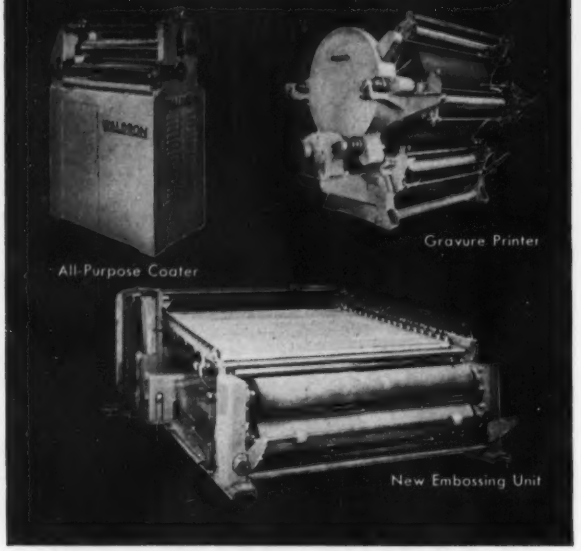

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NEWS ABOUT Mills

Cotton Mills

Alice Mfg. Co., Easley, S. C., is building a one-story plant between Easley and Pickens. The new plant will be used to manufacture cotton print cloth.

Cabin Crafts, Inc., Dalton, Ga., will use its new dyeing and finishing mill, now being constructed, for expansion in output of its Needletuft carpet division. The new plant will be one story, 52x220 ft.

Casco Laces, Inc., Providence, R. I., was recently chartered. The incorporators are Cecilia A. Gilgannon, of Cumberland; Thomas H. Quinn, of West Warwick; and Joseph R. Weisberger, of East Providence. Lace and other textile fabrics will be manufactured.

Clinchfield Mfg. Co., Marion, N. C., has completed its two-year expansion program at a cost of several million dollars. The company has installed 300 new Draper 45-in. X-2 looms. Sixty-five new Saco-Lowell cards and 15,000 new Whitin spindles were also installed.

Clinton Cotton Mills, Clinton, S. C., which is now constructing a multimillion-dollar addition, expects the project to be completed about the middle of 1953. Completion of the addition will allow the mill to consolidate all its present machinery in one building. The No. 1 plant will be used for the manufacture of fabrics more suitable to its type of structure. Fiske-Carter Construction Co., Spartanburg, S. C., is the contractor.

J. & P. Coats, Inc., Pawtucket, R. I., is working with Saco-Lowell Shops on equipment for its new opening and blending room.

Eagle & Phenix Mill, Columbus, Ga., has a large-scale modernization program under way that will affect all departments.

Exposition Cotton Mills, Atlanta, Ga., recently opened its newly built cafeteria. The building is air conditioned and fully equipped.

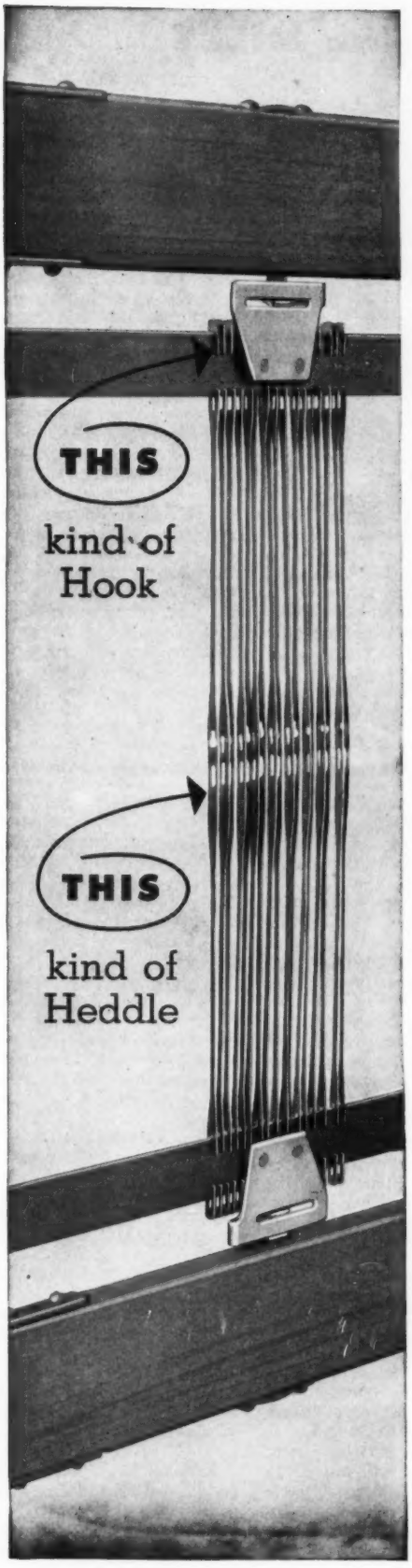
Fulton Bag & Cotton Mills, New Orleans, La., is completing plans for a one-story addition to its local mill.

Gonzales Cotton Mill, Inc., Gonzales, Texas, has been leased to Texas Textile Mills, Dallas, Texas. New equipment has been purchased and is being installed at Gonzales. Bryan Miller, Jr., remains as manager, and W. D. Massey as superintendent.

Graniteville Co., Graniteville, S. C., is doubling the capacity of its steam-power production and installing a new water-filter plant.

Haynsworth Mill, a subsidiary of Woodside Mills, Anderson, S. C., is building an addition that will cost $300,000. The 27,000 sq. ft. of space will be used as a slasher room and storage. Daniel Construction

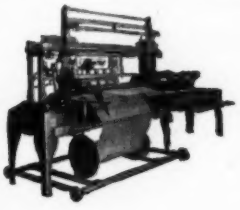
AMERICAN THREAD CO. is scheduled to begin production in its new plant at Sevier, N. C., next month. The new plant contains 600,000 sq. ft. of floor space. J. E. Sirrine Co., Greenville, S. C., was the architect and Daniel Construction Co., Greenville, was the contractor.



You can improve your weaving **NOW** and be ready for a Warp Drawing Machine **LATER** if you will gradually re-equip with **FULL-FLOATING** type Harness Frames and key-hole type Heddles...

The Barber-Colman Warp Drawing Machine requires equipping your looms with harness having steel heddles of the type shown here, in order that the selecting mechanism may properly position the correct heddle eye for each drawing-in needle stroke. Also, these harness must have support bar hooks of the type shown, in order that the heddles may move freely the full length of the frame. The machine holds the heddles in a group, setting them off at proper intervals as each is drawn. This full-floating construction *improves weaving immediately* by removing restrictions and permitting each heddle to find its proper in-line position in the frame.

Now, the cost of such harness may amount to more than the cost of the Warp Drawing Machine. This should not discourage consideration of the machine, in view of the advantages of substantial cost savings in warp preparation. Since you are replacing heddles and harness frames frequently and constantly as they wear out — why not start *now* to replace with the type that can be used on a Barber-Colman Warp Drawing Machine? Then, when you are ready for the machine, the problem of special harness will have been solved. For details in connection with such a program, we suggest you consult your Barber-Colman representative.



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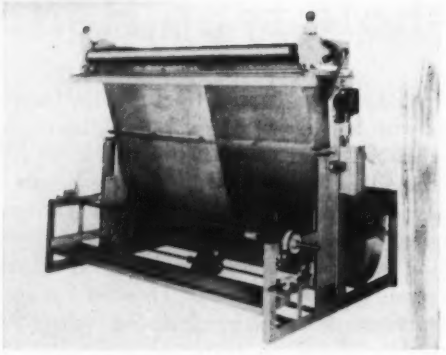

Above insert shows continuous roll feed with Electric Roll Lift Let Off.

Adaptable to practically any continuous feeding requirement, Mount Hope Continuous Roll Feeds save labor, save time, save cloth, *cut costs!*

ANOTHER Mount Hope CLOTH HANDLING DEVICE

ASK FOR BULLETIN CRF TODAY.

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News About MILLS

(Continued)

Co. is in charge of the project. Completion is expected in the near future.

Holly Mills, Inc., Mount Holly, N. C., formerly Fibre Products, Inc., has installed two cotton-system conventional long-draft spinning frames in its plant.

McComb Mfg. Co., McComb, Miss., has been granted permission to use a state-approved bond issue of $100,000 under the "balance agriculture with industry" program to provide funds to erect a yarn-twisting plant in conjunction with its local mill.

Oregon Flax Textiles, Inc., a division of National Automotive Fibres, Inc., Salem, Ore., will devote a large part of its present output to cotton carpets. Equipment and facilities recently were installed for this purpose.

Reeves Bros., Inc., New York, N. Y., has acquired the 66-year-old converting firm, Burton Bros. Burton fabrics will be distributed under the same names as formerly through the Reeves sales organization, Ernest B. Burton, president of his firm, is retiring.

Republic Cotton Mills, Great Falls, S. C., a division of J. P. Stevens & Co., is nearing completion of construction work at Mill No. 3. This project is part of the company's announced $1,250,000 expansion program.

Springs Cotton Mills, Lancaster, S. C., is installing 400 additional looms in its Fort Mill, S. C. plant. Combed-percale sheet production will be doubled.

Wamsutta Mills, New Bedford, Mass., has abandoned for the present the idea of building a modern plant in the South. The company will purchase a suitable established plant if a favorable opportunity should arise.

Woolen and Worsted Mills

American Woolen Co., New York, N. Y., has awarded a contract to W. B. Jones for remodeling the building recently purchased at Tifton, Ga. The plant contains 63,000 sq. ft. of floor space.

Canadian Automotive Trim Ltd., Windsor, Ont., will continue to operate its local plant following the completion of its new mill. The new plant will be equipped for production of fabrics for automobile interior trim and seat covers. It will cost about $1,000,000. The company is a subsidiary of National Automotive Fibres, Inc., Detroit, Mich.

Canadian Worsted Mfg. Co. Ltd., St. Thomas, Ont., is erecting a one-story addition that will provide 5,000 sq. ft. of additional floor space. Several modern machines, including spinning and roving frames, will be installed. J. George Gruber is president.

Collins & Aikman of Canada Ltd., Farnham, Que., has an expansion program under way. The program will include installation of additional equipment.

A. & M. Karagheusian, Inc., Albany, Ga., has awarded contracts to Hodges Contracting Co. to build additions to the plant recently acquired in Albany. A dyeing and finishing building, a boiler plant, a truck-loading dock, and several storage buildings will be constructed.

James Lees & Sons Co., Bridgeport, Pa., will spend $5,500,000 on capital improvements in the next 18 months, according to Joseph L. Eastwick, president.

James Lees & Sons Co., Atlanta, Ga., has let a contract to the Griffin Construction Co., Atlanta, for a one-story addition. The cost is reported to be about $100,000.

Livingston Worsted Mills, Holyoke, Mass., is installing 12 new spinning frames that can be used for worsted or synthetic yarns or for blends.

Macon Textiles, Inc., Macon, Ga., plans to install about 72 wide looms.

Pachaug Mills, Inc., Norwich, Conn., is installing four new Whitin frames, one new Foster cone winder, and new warp-compressing machinery.

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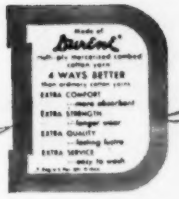

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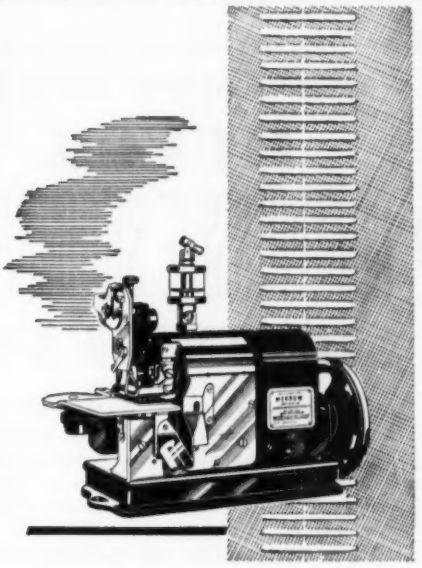

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IN leading textile plants, Magni-Focuser — the binocular magnifier—reduces eye strain and prevents squinting —thereby speeding production, increasing accuracy and minimizing the chance of errors and accidents. Especially valuable in working on 60 gauge, 15 denier yarn. Restores the usefulness of the skilled hands of many older workers whose vision needs a seeing aid.

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News About **MILLS** (Continued)

The company will specialize in specialty yarns.

Rock River Woolen Mills, Janesville, Wis., is constructing a one-story addition to its wool warehouse. The cost is estimated to be approximately $75,000.

Spring Grove Spinning Co., Woonsocket, R. I., has been acquired by new interests and will soon resume its Bradford-system of specialized worsted spinning. Charles Murray is expected to remain as plant superintendent.

Stillwater Worsted Mills, Inc., Harrisville, R. I., has acquired the mill property of the Harrisville Co., as well as other land holdings of that firm. The purchase price was approximately $500,000.

Wanskuck Co., Providence, R. I., has begun a major manufacturing reorganization to attain more efficient use of new machinery recently purchased. Additional new machinery will be purchased where needed, and older equipment will be disposed of as it is withdrawn from production.

Synthetics Mills

Beaunit Mills, Coosa Pines, Ala., recently started operations at its tire-yarn plant.

Raycord, Inc., Spartanburg, S. C., is moving its personnel and equipment to a building located at Camp Wadsworth. The Wadsworth site recently underwent a remodeling program at a cost of $60,000. A 12,000-sq.-ft. building addition will be started soon.

Skenandoa Rayon Corp., Utica, N. Y., recently reopened after a shutdown of 11 months during which a $1,000,000 modernization program was completed.

Stardust, Inc., Hazlehurst, Ga., is leasing the Hindel Mfg. Co. plant. Earl Stidham has been made the general manager. Morris Seiff is head of the corporation.

Knitting Mills

William Carter Co., Needham Heights, Mass., plans an expansion program at its Forsyth, Ga., plant that will double its capacity. The plant addition will provide 16,000 sq. ft. It will be built by J. T. Hill of Forsyth.

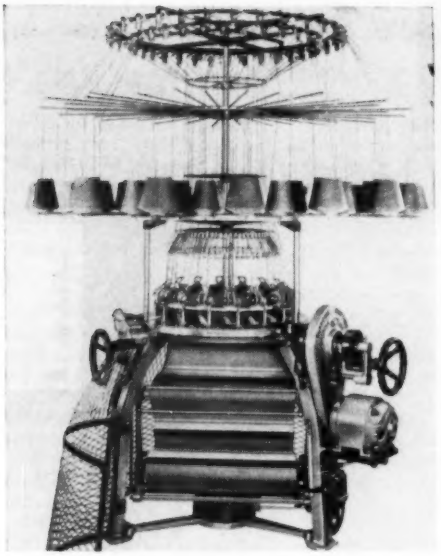
Hoburt Hosiery Corp., Denton, N. C., has received its first 66-gauge 32-section Lieberknecht knitting machine. This is one of several such machines called for in Hoburt's expansion program.

Ilena Mills, Chattanooga, Tenn., has begun construction of a new one-story addition. L. A. Warlick Contracting Co., Chattanooga, is the general contractor. P. B. Shepherd, Chattanooga, is the architect. The cost is reported close to $100,000, with equipment.

Linn-Made Hosiery Mills, Hickory, N. C., has opened its new plant at Taylorsville, N. C., for the production of anklets in the gray. Fifty knitting machines and 17 looping machines have been installed.

Lorane Knitting Mills, Reading, Pa., has been sold to Max Fisher of Reading.

JULIUS KAYSER & CO. will begin operations soon in this new plant at Liberty, S. C. All hosiery knitted in Kayser's Southern plants will be finished at this mill.



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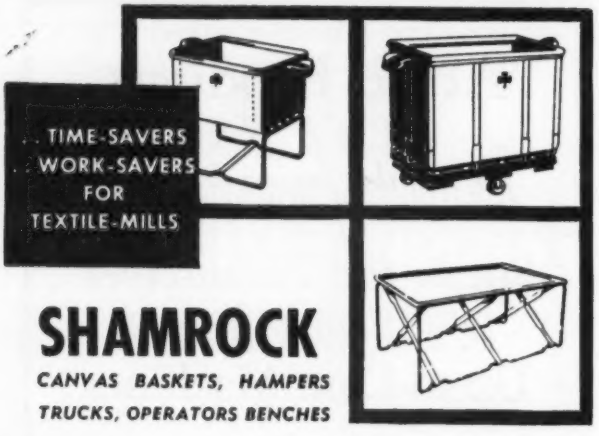

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News About **MILLS** (Continued)

Newton Knitting Mill, Newton, N. C., has been purchased by R. S. Dickson, Charlotte, N. C.

Nolde & Horst Co., Reading, Pa., has started moving its operations from its four-story plant at Ninth and Douglass Sts. to its Womelsdorf factory.

Oneita Knitting Mills' unit located at Andrews, S. C., recently dedicated its new $170,000 structure. The building is designed to facilitate further expansion. It is expected that the knitting department will be enlarged first.

Park Knitting Co., New London, Wis., has opened a mill to produce 54-gauge full-fashioned hosiery. The New London plant was formerly used by Holeproof Hosiery Co.

Rittenhouse Hosiery Mills, Inc., Boyertown, Pa., is completing work on a new 11,000-sq. ft. addition to its present building. Knitting machines are to be installed. Operation is scheduled for May.

Runnymede Mills, Inc., Tarboro, N. C., has been granted a 7-yr. loan of $150,000 by RFC. The loan will be used to retire existing loans and replace obsolete equipment. The company manufactures children's hosiery.

Silver Knit Mills, Inc., High Point, N. C., has nearly completed the construction of its new dyehouse. The plant is being equipped with the latest-model Smith-Drum package-dyeing machines and necessary winding equipment for the dyeing and winding of ingrain yarns. The company operates 600 machines on men's half-hose and anklets.

Spurgeon Hosiery Corp., Philadelphia, Pa., has installed several Lieberknecht 66-gauge full-fashioned hosiery machines.

Wright Hosiery Mill, Inc., Spruce Pine, N. C., is installing 18 Argyle-pattern knitting machines in its new mill. The company plans to install 42 Banner warp-knitting machines at a later date.

Dyeing & Finishing Plants

Aspinook Corp., Jewett City, Conn., according to a statement made at a recent reorganization meeting, will initiate an extensive program to expand operation at Adams, Mass., and Jewett City, Conn.

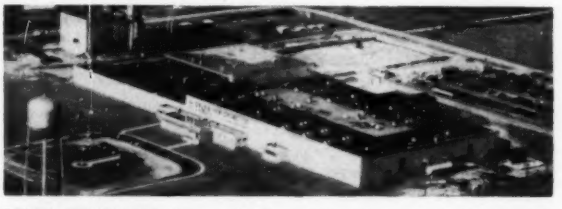
Capital Piece Dye Works and **Garnerville Dye Works,** Garnerville, N. Y., are modernizing at a cost of over $100,000. New equipment is being installed. Samuel Koenig is president of both firms.

Essex Dyeing & Finishing Works, Inc., newly formed, has taken over the Patchogue Dyeing & Finishing Co. plant, Patchogue, N. Y. Operations have been started.

Glass Fabrics Finishing Co. has acquired a new plant in Cedar Grove, N. H. The plant contains about 14,000 sq. ft.

Putnam Dye Works, Putnam, Conn., has begun jack-spool dyeing of worsted and woolen yarn. The company has seven jack-spool dyeing machines for its commission dyeing. The production capacity is 15,000 lb. a week.

Statesville Finishing, Inc., Statesville, N. C., has been incorporated to do a hosiery and



DELTA FINISHING CO., a division of J. P. Stevens & Co., Inc., is constructing an addition to its plant at Wallace, S. C. Daniel Construction Co., Greenville, S. C., is the contractor.

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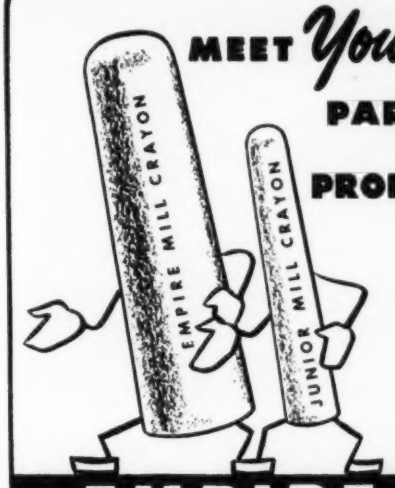

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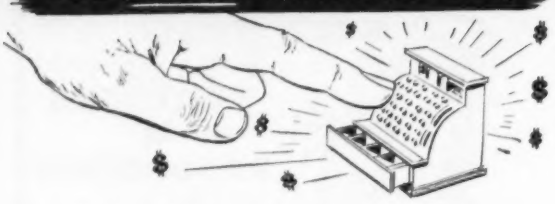

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News About MILLS (Continued)

textile business with an authorized capital of $100,000.

Unity Dyeing & Processing Co., Philadelphia, Pa., is being merged with the Gylock Corp. and will henceforth be known as the Unity Div. of Gylock Corp. Proofing of tapes and fabrics will continue.

Miscellaneous

Ace Yarn Winding Co., Brooklyn, N. Y., has leased a one-story building containing 5,000 sq. ft. of space from Joseph Moscowitz.

American Pad & Textile Co., Greenfield, Ohio, has acquired the Seaway Mfg. Co., Inc., New Orleans, La., and will operate it as a division of the organization in the future.

Bemis Bro. Bag. Co., Memphis, Tenn., has signed contracts for a new 120,000-sq.-ft. plant at Latham and Third Sts. Construction will start immediately and the new building will be occupied about April 1.

Decorative Linens Mfg. Ltd., Montreal, Que., is constructing a two-story addition to its plant. Mayerovitch & Bernstein, Montreal, is the architect.

Indianola, Miss.—Town officials will soon award the contract for a one-story building with 140,000 sq. ft. of floor space, to be occupied under a long-term lease by Ludlow Mfg. & Sales Co., Ludlow, Mass. Equipment will be installed for an initial working force of 400 persons. The cost is reported close to $3,000,000. Chas. T. Main, Inc., Boston, Mass., is the architect and engineer.

Technical Tape Corp., New York, N. Y., and Montreal, Que., is extending its manufacturing facilities to the Pacific coast through a new subsidiary, Technical Tape Corp. of California. The new company will produce specialty tapes in a three-building plant now being equipped in Burbank, Calif.

United Fabrics, Inc., Providence, R. I., has filed notice of a change of name to Quiltex, Inc.

Worcester Woven Label Co., Worcester, Mass., has moved its 22 looms to its new plant at 11 McKeon Road.

Foreign Mills

Branger Plants, Valencia and Maracay, State of Aragua, Venezuela, recently installed new equipment.

Celulosa y Derivados, S. A., Monterrey Mexico, is installing machinery for the production of rayon-tire yarn by the Kohorn continuous process.

Fro-Tex (Pty) Ltd., Edenvale, near Johannesburg, South Africa, has started up its mill on terry-towel production.

Hong Kong United Silk Textile Industrial Corp. Ltd. has been incorporated in Hong Kong to engage in the spinning and weaving of silk, rayon, and cotton. The plant will be located in the Philippines

Kanegafuchi Spinning Co., Japan, is reported to have organized Kanebo, Inc., in New York, with a capitalization of $150,000, to set up and operate a research company.

Malayan Textile Mills Ltd., Singapore, has begun production in its $2,500,000 cotton-yarn mill.

National Institute of Industry, Malaga, Spain, has started to build a cotton-yarn mill that will contain 20,000 spindles.

Pakistan Industrial Development Corp., Washington, D. C., has two woolen mills under construction at Bannu and Baluchistan, West Pakistan. The company is looking for textile technicians from the United States.

Societe Cotoniere de Cadolon, 48 Rue St. Alban, Roanne (Loire), France, is interested in expanding production by the addition of automatic looms of either French or U. S. origin. The firm wants American financing and perhaps licensing to produce some controlled American textile construction or finish.

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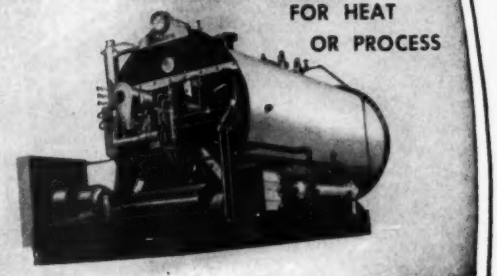

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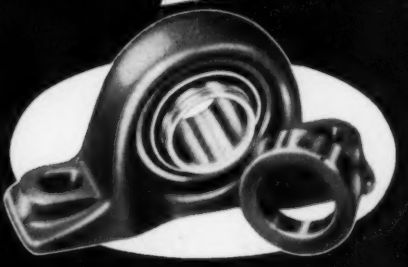

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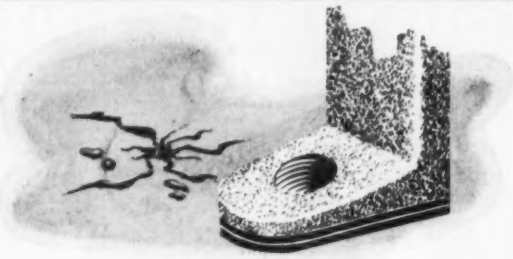

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NEWS ABOUT *Men*

Frank E. Adams has been named superintendent of Wyandotte Worsted Co., Rochester, N. H.

Irwin Belk has been elected a director of Quaker Meadows Mills, Hildebran, N. C., to succeed his late father.

Robert H. Bishop has been appointed assistant to **William F. C. Ewing**, president of Alexander Smith, Inc., Yonkers, N. Y. Mr. Bishop was formerly with E. F. Drew Co.

Herbert Bridges has been promoted to overseer of dyeing at Wuskanut Worsted Corp., Farnumsville, Mass. **Leo Fontaine** has been promoted to overseer of finishing.

W. O. Bryant has been named resident superintendent of Kingston Mills, Cartersville, Ga., succeeding **Buren Henderson**, resigned.

Claiborn M. Carr, Jr., who was formerly associated with J. P. Stevens & Co., New York, N. Y., has joined the synthetic-fabrics division of the company at Dunean, Ga.

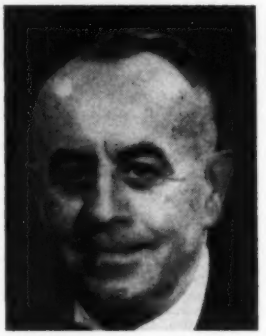
Joseph A. Carr and **John H. Brenner, Jr.**, have been elected vice presidents of Cannon Mills, Kannapolis, N. C.

Gordon Coles has been elected a director of North Carolina Finishing Co., Salisbury, N. C.

Sidney M. Cone, Jr., has been named president of Cone Finishing Co., Greensboro, N. C. **Marshall J. Gardner**, Greensboro, and **Percy C. Gregory, Jr.**, Greenville, S. C., have been named vice presidents.

Frank S. Connett, treasurer of American Woolen Co., New York, N. Y., has been granted a leave of absence. **George E. MacLellan, Jr.**, vice president, has been appointed assistant treasurer and will perform the duties of treasurer during Mr. Connett's absence.

John B. Crosby has been appointed head of the rayon department of Iselin-Jefferson Co., New York. He succeeds **Claiburn M. Carr, Jr.**



JOHN J. NEWTON has been named superintendent of Dan River Mills, No. 3 Div. at Schoolfield, Va.

Oliver R. Cross has been appointed treasurer of Cross Cotton Mills, Marion, N. C. **C. F. Goldsmith** has been named to the office of secretary.

H. W. Croy has been named overseer of weaving at Anchor Rome Mills, Rome, Ga. He was formerly with the Sibley Div. of Graniteville Co., Augusta, Ga., as assistant overseer of weaving.

Walter L. Cummings has been named a designer for Peerless Woolen Mills, Rossville, Ga.

Edward L. Daniels has been appointed superintendent of the knitting department of the New Braunfels, Texas, mill of Airmaid Hosiery Mills, Dallas, Texas. Mr. Daniels, who was formerly quality controller, succeeds **Richard E. Barth**, who has not announced his future plans.

Henry De Wald has joined Stonecutter Mills, Spindale, N. C., as manager of the technical division and quality control.

News About **MEN** (Continued)

L. K. Fitzgerald, former director of research and development, has been promoted to the newly created post of coordinator of merchandising and manufacturing at Dan River Mills, Inc., Danville, Va. **Dr. H. Y. Jennings** has succeeded him as director of research.

Frank L. Foreman, general sales manager of Botany Mills, Inc., Passaic, N. J., has resigned.

Charles Fox has retired as finisher at Riverside Woolen Mills of William Park & Sons, Inc., Stafford, Conn. He has been succeeded by **Lewis V. Putney.**

George Galbraith has been named vice president at Waterville Textile Mills, Inc., Waterville, N. Y.

J. W. Griffin has been named manager of the Corinth Plant of Cluett Peabody & Co., Inc., Corinth, N. Y.

John R. Hawkins has been promoted to assistant section superintendent of inspection at Dan River Mills, Danville, Va. **J. Wesley Hornaday** has been promoted to general overseer of weaving.

James Harrell, vice president of J. P. Stevens & Co., Inc., Greenville, S. C., has been named assistant executive officer of the Clemson mill of the Utica & Mohawk Division of that company.

Carl R. Harris, vice president and assistant treasurer of Erwin Mills, Inc., Durham, N. C., has been elected to the newly created office of executive vice president. **Ralph T. Marshall**, former president of Utica & Mohawk Cotton Mills, Inc., Utica, N. Y., has been elected vice president, treasurer, and a director.

Robert W. Howison has been appointed general sales manager of Bigelow-Sanford Carpet Co., New York, N. Y. **Roland Brownlee**, formerly assistant general sales manager, has been named marketing manager.

John L. Hutcheson, Jr., and **S. Lewis Hutcheson** have been elected members of the board of Burlington Mills Corp., Greensboro, N. C.

JAMES R. BRILLON has been named sales training manager at C. H. Masland & Sons, Carlisle, Pa.

Robert J. Jackson has been appointed manufacturing-engineering manager of Bigelow-Sanford Carpet Co., Thompsonville, Conn.

E. J. Jardis has been named assistant to the general manager of Brookneal Mills, Brookneal, Va.

E. D. Johnson has been made general superintendent of Peerless Woolen Mills, Rossville, Ga.

J. Rollins Jolly has been named to the new position of manager of the Southern plants of American Thread Co., located at Dalton, Newnan, and Tallapoosa in Georgia; Clover, S. C., and Troutman, N. C.

James Knowles, Jr., has been named superintendent of the new Kilburn Mill, Tryon, N. C.

Bernard Kramer, formerly a partner in the California Knitwear Co., Los Angeles, is now a partner in the South Pacific Textile Mills. Mr. Kramer will act as secretary-treasurer of South Pacific, replacing **Mac-Arnold Radom**, who recently resigned.

R. C. Kramer has been elected chairman of Julius Kayser & Co., New York, N. Y., and **William B. Terry** has been named secretary.

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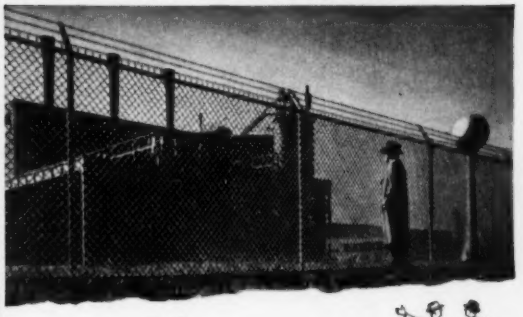

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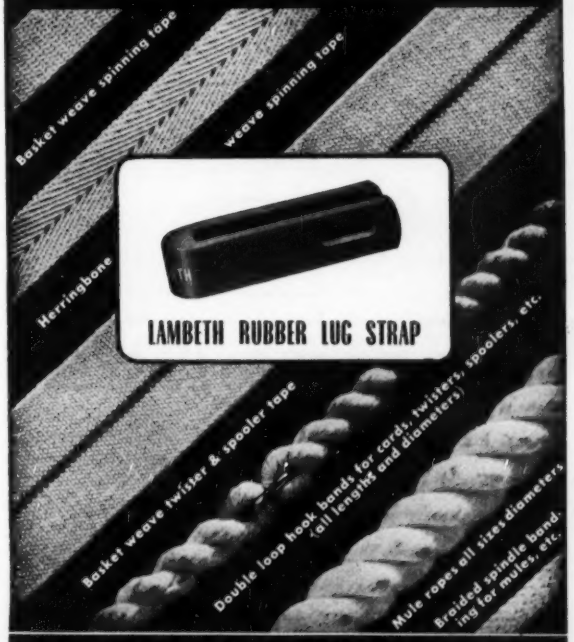
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News About MEN

(Continued)

Robert H. Lankford, Jr., has been named general superintendent of Chatham Mfg. Co., Elkin, N. C., to succeed the late **Fred Neaves. Harry A. Meinung** has been promoted to superintendent of finishing and **Harry H. Barker, Jr.**, to superintendent of all operations through weaving.

Maurice Lannan has resigned his position with Varel Mills, Inc., Middleway, W. Va. Mr. Lannan is now overseer of finishing at Lebanon Woolen Co., Lebanon, N. H.

Charles E. Lichenberg, former head of the Western division for Julius Kayser & Co., Inc., New York, N. Y., has been appointed to head the firm's new Southern division. **Paul Hotchkiss** has been appointed to succeed Mr. Lichenberg as head of the Western division.

Albert A. List has been elected chairman of the board of Aspinook Corp., Jewett City, Conn. **Fred W. Squire** has been named treasurer.

George Lovett has resigned as night overseer of finishing for Chicopee Mfg. Corp., Chicopee Falls, Mass. He has been succeeded by **Lawrence Ladd.**

John Lyons, Jr., is now with S. Stroock & Co., Inc., Newburgh, N. Y., in direct charge of finishing operations in the finishing division. This department is headed by **Theodore Eberhardt.**

John T. MacLaughlin, Jr., has been appointed administrative assistant to **Basil D. Browder**, executive vice president of Dan River Mills, Danville, Va.

B. J. Mallard has resigned as assistant overseer of carding at Springs Cotton Mills, Chester, S. C., to accept a position with Highland Cotton Mills, Inc., High Point, N. C.

Charles Mascroft has become overseer of dyeing at Rock River Woolen Mills, Janesville, Wis.

George P. McClenaghan, vice president of J. P. Stevens & Co., Inc., and **R. Carter Henry** have been appointed assistant executive officer and general manager, respectively, of the Apalache Plant of Victor Monaghan Co. Div. at Greer, S. C.

JOHN C. CONNIFF has been named director of employment at Dan River Mills, Inc., Danville, Va. Mr. Conniff succeeds Ernest G. Wigfield, resigned.

E. G. McIver, Jr., has been appointed assistant manager of Erwin Mills operations in Durham, N. C. **Ralph G. Jones** has retired as headquarters office manager.

Robert F. McKown has resigned as general superintendent of the finishing plant of Riegel Textile Corp., Ware Shoals, S. C.

Joel Perham has resigned as overseer of finishing at Vermont Textiles, Inc., North Montpelier, Vt. He has been succeeded by **George Lodge.**

Ralph H. Pfeiffer has been named overseer of top dyeing at Middlesex Worsted Spinning Co., Lowell, Mass.

Maurice Phillips has been appointed general mill superintendent of Botany Mills, Inc., Passaic, N. J. Mr. Phillips succeeds **Robert E. Kuhn.**

Kenneth Pinnell, formerly associated with Dan River Mills and Deering, Milliken Co., has rejoined Southeastern Cottons, Inc., New York, N. Y.

Abe Raffelock, formerly with Plaza Mills, Inc., Middleburg, Pa., has joined Raycrest Mills, Inc., Pawtucket, R. I., as vice president in charge of gray goods.

William J. Ransom has been

News About **MEN** (Continued)

named a vice president of Liberty Fabrics, Inc., New York, N. Y.

Harold Risher, who has been associated with Excelsior Mills, Union, S. C., has been appointed superintendent of Excelsior Mill No. 4 at Pendleton, S. C. **C. E. Anderson**, formerly with Deering-Milliken Service Corp., will become superintendent of the Excelsior Mills plant at Union.

Joseph Russell has resigned as overseer of dyeing at Falls Co., Norwich, Conn.

George A. Shelton has resigned as overseer of wool carding for W. S. Libbey Co., Lewiston, Maine.

Arthur Shook has been named resident manager of Dresden Mills, Inc., Dresden, Ohio.

John D. Siewers and **Walter A. Blackwood** have been elected vice presidents of Washington Mills Co., Winston-Salem, N. C. **C. H. Reid**, vice president and secretary, was elected a director, and **S. R. Bason**, formerly assistant treasurer, has been elected treasurer.

Bud E. Simonton has been appointed superintendent of the Toledo, Ohio, plant of Chase Bag Co., Chicago, Ill. **John F. Hilarski**, assistant superintendent, will assist Mr. Simonton.

James R. Smith, vice president and chief operating officer of Claussner Hosiery Co., Paducah, Ky., has been named president, succeeding his father-in-law, the late **W. P. Paxton. Revel McCallum**, vice president of Claussner, heads the Propper-McCallum Div. of Claussner in Northampton, Mass.

Harvey Steele has become general overseer in the No 2 weaving department of Republic Cotton Mills, Great Falls, S. C. **W. M. Carter** has assumed his new duties as general overseer of weaving at Mill No. 3.

Lewis Steiger has been appointed sales manager of Botany Mills, Inc., New York, N. Y. He was formerly president of Abbey Imports, Inc.

RICHARD OSBORN has been appointed manager of the St. Louis, Mo., office of Springs Mills, Inc.

Ralph Tanner has been appointed to the newly created position of co-ordinator of sales and manufacturing at Mooresville Mills, Mooresville, N. C.

Joseph B. Templeton, superintendent of Lydia Cotton Mills, Clinton, S. C., has been named vice president in charge of manufacturing at both Lydia Cotton Mills and Clinton Cotton Mills.

John A. Thomas has been named supervisor in charge of all processing on the second shift of Standard Bleachery & Printing Co., Inc., Carlton Hill, N. J.

Roland V. Thomas is retiring as a director and vice president of Chicopee Mills, Inc., New York, N. Y.

Frank Towle has resigned as overseer of spinning at Wyandotte Worsted Co., Waterville, Maine.

Clarence A. Weiller has joined M. Lowenstein & Sons, New York, N. Y., where he will be in charge of design and coloring of Lowenstein fabrics. He succeeds **Raymond Fishel**, resigned.

W. Whipple, former general superintendent of sheeting and blanket operations for Textron, Inc., at Nashua, N. H., is now head of the Indian Head Div. of Textron Southern, Inc.

Clarence E. Wylie has been named purchasing agent at Mooresville Mills, Mooresville, N. C. He succeeds **J. Chester Johnson**, resigned.

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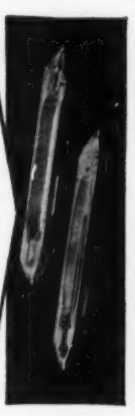

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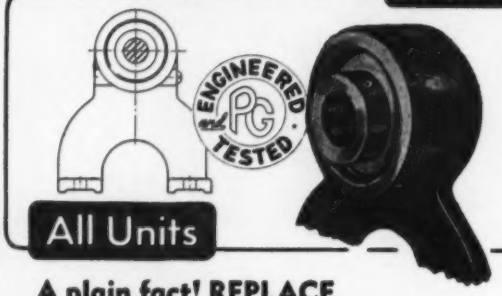

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OBITUARY

Edward S. Alden, treasurer and vice president of Whitin Machine Works, Whitinsville, Mass.

Arthur S. Babbitt, retired plant engineer at Hoosac Mills Corp., New Bedford, Mass.

George Brownlee, former secretary of Woodside Mills, Greenville, S. C.

James H. Bulkley, 39, manager of the decorative-fabrics division of Mooresville Mills, New York, N. Y.

Harry W. Butterworth, Jr., 62, chairman of the board of H. W. Butterworth & Sons Co., Bethayres, Pa.

John Cambria, 66, president of General Thread Mills Co., Boston, Mass.

Fred J. Coggeshall, 70, retired superintendent of Bates Mfg. Co., Auburn, Me.

Joseph Corea, 49, master dyer for Berkshire Knitting Mills, Reading, Pa.

W. A. Duke, 53, night superintendent of Buck Creek Cotton Mills, Siluria, Ala.

Arthur J. Durham, 63, superintendent of Hayward Hosiery Co., Ipswich, Mass.

Joseph Hickory, master mechanic at Wuskanut Worsted Corp., Farnumsville, Mass.

W. Charlie Huff, superintendent of the mechanical department of Westboro Weaving Co., Greenville, S. C.

Thomas Neetly Hunter, director of purchases for McCrary Hosiery Mills, Asheboro, N. C.

H. O. Jackson, 54, president of Great Falls Bleachery & Dye Works Mfg. Co., Somersworth, N. H.

Vance Willis Jenkins, 58, owner of Catawba Valley Finishing Co., Newton, N. C.

E. D. Johnston, 63, general superintendent of Peerless Woolen Mills, Rossville, Ga.

Stephen Wright Kellog, 50, retired vice president of the former Bennington Mills, Inc.

Thomas Edward Kendall, 63, former vice president of Minneapolis Knitting Works, in charge of its Pacific States Div., Los Angeles, Calif.

Frank M. Mason, 42, vice president of U. S. Electrical Motors, Inc. Mr. Mason was general manager of the company's Atlantic plant in Milford, Conn.

Edward M. Mathewes, 84, retired secretary-treasurer of Spartan Mills, Spartanburg, S. C.

Samuel A. Mauney, 78, president of Kings Mountain Mfg. Co., Kings Mountain, N. C.

John J. McHardy, 67, vice president of Mercury Mills Ltd., Hamilton, Ont., Canada.

Charles S. McKenzie, 56, owner and manager of Plymouth Hosiery Mills, High Point, N. C.

Joseph J. McMahon, general superintendent of Clifford Mfg. Co., Waltham, Mass.

Clarence R. Miller, 68, chairman of the board of The Texas Textile Mills, Inc., Dallas, Texas.

John M. Moore, Sr., 74, president of Dacotah Cotton Mills, Lexington, N. C.

Frederick E. Nason, 54, a foreman at the Sanders Cotton Mills, Starkville, Miss.

Denis T. Noonan, 77, chairman of the board of Berkshire Woolen Co., Pittsfield, Mass.

Godfrey B. Simonds, 48, a director of Textron, Inc., Providence, R. I.

Robert M. Tyrrell, 65, assistant treasurer and purchasing agent of Limerick Yarn Mills, Manchester, N. H.

Charles W. Watts, 77, a member of the board of Charlottesville Woolen Mills, Charlottesville, Va.

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AVAILABLE, SUPT. or Assist.-Supt. of Cotton Mill. Specialized in Weaving. Good general knowledge of all departments, also production and quality control. Good producer, over twenty-four years experience, I.C.S. course, University training in Business Management and Industrial Organization. Best of references. Reply to PW-6664, Textile World.

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EXPERIENCED NOVELTY YARN MAKER

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An unusual opportunity for a man between the ages of 30-40 with a good educational background and practical experience. Our employees are familiar with this opening.

Reply with details of education and experience.

P-6649, Textile World
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EXPERIENCED KNITTING mill man on cotton, rayon, wool, and new fibres seeks new position. Experience covers yarn manufacturing, on cotton & wool. Also Knitting, dyeing, cut & sew, press, pack and ship, production control. Also experienced in industrial engineering, industrial relations, time study, rate setting, cost accounting and buying. Have held jobs of Superintendent, and Manager. Write PW-6656, Textile World.

POWER ENGINEER with twenty years experience plans making change. Well-rounded experience includes service engineering work for one of the major manufacturers of power plant equipment, power plant superintendency, and consulting engineering work in the power plant field. Unusually wide experience with various fuels including oil, natural gas, all types of coal firing, and waste fuels. Thorough technical knowledge of all phases of power plant operation. Excellent references. PW-6647, Textile World.

RAYON NYLON Throwster. Thoroughly experienced in production and supervision. Modern and practical methods in all phases of throwing. Capable establishing throwing units and training own help in all throwing departments. Married. References. Employed. PW-6556, Textile World.

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Lead-lined Cypress tank
Fittings acid resisting metal
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90" wide—Never used
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Complete with auxiliary equipment
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Regular Width—Beam type
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Universal magazine creel
500 Active ends with 6 lint fans
50 Allen section beams—54½" with 28" heads
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1 center frame (drying)
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"Taylor system of slasher control" including all instruments, control valves, piping, etc.
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GESSNER TEASEL GIG and BRUSH RANGE Item GTG-B
New 1948—Used 3 months
68" Working Width
6 Double Cylinder Gigs
1 Double Cylinder Brush
Cylinders 48" diameter x 60" face
Each unit separately driven by D.C. motors for variable speed, and motor generator set to supply D.C. current for entire range.
This is exceptional equipment.
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2 GESSNER FULL DECATING MACHINES Item GFD-B
72" wide—Double unit includes
2 horizontal kettles or steaming cylinders with floor truck, carriage, apron rolls, and vacuum pump. Also, 2 cooling frames.
1 R C vacuum pump with drive
1—1000 lb. Shepard electric hoist and monorail
1—#1 Nash pump
All used but reconditioned by Gessner—1943.
At present, set up and ready to go at our Plant B, Philadelphia, Penna.

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WINDING

2 YARN WARP COILERS Item 12166
Ceiling type

WHITIN QUILLER—MODEL J Item L-WQ
304 Spindle
3½" Gauge—10½ Traverse

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COATING MACHINE Item 12418
72" Width Cloth Roll
Chain Drive

CURTIS & MARBLE STEAM PRESS Item 12290
66" Working Width
Chain Drive but Without Motor

DRY TIGER Item 13214
3 Cylinder. Complete with cylinders and fancies, motors and starting equipment for cylinders and exhaust hoods.

1 YARN TESTER Item 13519
Alfred Suter—Single Strand
Hand Operated

1 BEATER Item 13215
4 Cylinder
With exhaust hoods

MISCELLANEOUS

1—4 ROLL MANGLE Item 12582
For Dye Machines
66" Working Width
Rubber Rolls

9000—W-3 AUTOMATIC FILLING BOBBINS Item 13584
10¼ O.A.—9¼ Barrel

30,000—W-3 AUTOMATIC FILLING BOBBINS Item 13584
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390 RED FIBER CASES Item 12610
35" long x 17" wide x 32" high
These cases are well constructed with 4 runners on the bottom and inside metal handles at the top. All corners and top are reinforced metal with 1¼" strap iron.

3 THOMAS HALTON JACQUARD HEADS Item B-HJ
600 Hooks—Double 300—3 Position
9" Lift—Would include Crank Lever Stand, and Side Pump Lever. But No Lingoes or Harness.

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1 BATCHER, Single drum type, 79" with scrimp roll
1 BEAMING HEAD for Warper with tail stand
1 Van Vl. BUTTON BREAKER, 19 B.B. brass rolls, 50"
1 P&W 4 roll BRUSH & SANDER 66"
1 Pernick Knit Goods CALENDER (tubular cloth) 42" Steamer, Spreader, etc.
1 Granger Friction CALENDER, 3 roll 43¼" screw set
2 C&M CHINCHILLA MACHINES 80", moveable platens
2 D&F TAPE CONDENSERS, 60"—96 ends
2 Whitin RETURN AIR UPRIGHT CONDENSERS, 72" cylinders
1 K&N CEILING CONDENSER, 46" cyl.
3 S&L CEILING CONDENSERS, 36 cyl.
1 D&F DOUBLE RUBB CONDENSER, 48"—20" Ring Doffers
2 D&F DOUBLE RUBB CONDENSERS, 60"—18" Ring Doffers
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1 Schofield DOUBLER, 80", horizontal type
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1 E&H FOLDER, 1 yd., 50" on jaw with airlift
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68 C&K Wi Veri-Best LOOMS 82" auto. 4x1, 25 har.
28 C&K LOOMS 82" auto. 4x1, 25 har.
18 C&K LOOMS 92" auto. 4x1, 25 har.
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1 D&F NAPPER 80" Single Acting 12 roll
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1 C&M SHEAR 2 Blade, Velvet type 60"
1 C&M SHEAR Single Blade, Velvet type 66"
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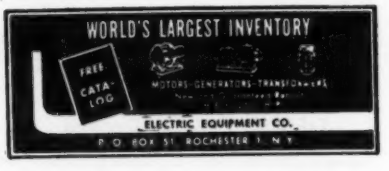

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Research Developments

(*Continued from page 103*)

State College. Several of the mills supporting this research were willing to spend money on the new project because of tangible benefits from the research on nep reduction recently completed at N. C. State [TW, May '52, p. 91]. In that project, one mill alone made an estimated saving of $132,000 in one year as the result of a $60,000 investment by the USDA in the project.

PROJECTS OUTLINED. As industry rallied to the cause of research, a multitude of fundamental and applied projects were completed, continued, or started during the year.

• At Textile Research Institute, long-range studies continued on cellulose and starch, damage to cotton in processing, investigation of properties of wool, dyeing phenomena (with radioactive tracers), properties of cotton, measurement of single-fiber properties, static electricity in fibrous materials, and many other smaller but important projects.

• Research at the School of Textiles, Clemson College, includes studies of cotton-rayon blends for sheeting, the relationship between cotton variety and fabric construction, the effect of lot size on processing tests, and finishing properties of several cottons.

All of those projects are sponsored by the USDA.

Other projects at Clemson include: use of electrostatic forces in opening and cleaning cotton, correlation of Pressley gauge length with strength of yarn and tire cord, development of small-scale finishing tests, and a study of the improvement of processing characteristics of several cottons by use of additives to increase fiber friction.

Clemson research has also developed several improved motions and attachments for looms, pickers, drawing frames, spinning frames, and testing machines.

• Projects under industrial sponsorship at Lowell Textile Institute Research Foundation include a study of the influence of the surface coefficients of friction of cotton fibers on processing conditions, the design and manufacture of optimum constructions for abrasive packings, and the processing evaluation of experimental fibers.

An economic survey of the actual and potential markets for wool scouring by-products is now under way at Lowell under the sponsorship of the USDA. A technical evaluation of wool scouring and waste recovery has re-

(*Continued on page 326*)

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(Continued from page 324)

cently been completed by the foundation under a grant by the U. S. Dept. of Public Health.

Lowell is also working on several research and development programs for the Air Force. Two of these programs involve dyeing studies to improve the light fastness properties of fabrics. A third project deals with the evaluation of the energy-absorption capacity, under compression, of shock-absorbing materials for parachute drop kits. An impact tester to measure the characteristics of these materials under high rates of loading is now under construction. Another project involves the improvement of the thermoresistance of nylon parachute fabrics for high altitudes.

• The Dept. of Textile Research, School of Textiles, N. C. State College, is carrying out processing development and evaluation work on new synthetic fibers for six fiber producers or potential fiber producers. In addition, in a project sponsored by Du Pont, the school is attempting to improve processing methods for 1½-den. nylon staple, in a follow-up on the recently completed study on 3-den. nylon [TW, Dec. '52, p. 114].

A project aimed at reducing waste in cotton carding has recently been started under sponsorship of six Southern mills. Another, sponsored by the USDA, will explore properties and processing characteristics of raw cotton mercerized without tension; and another USDA project is aimed at development of an instrument to predict the nep potential of raw cotton.

• The types of research at Philadelphia Textile Institute include investigation of spinning characteristics of new synthetic fibers, development of fabrics for which such new fibers are most suited, study of the effect that synthetic fibers have on the physical and physiological properties of fabrics made from blends with the natural fibers, development of new construction and fabrics for the Armed Forces, study of the effect of twist and fabric construction on the bedding mechanisms of yarns, further studies in the problems of high-temperature dyeing, and evaluation of the effect of weave and texture on color.

Research fellowships for the Pennsylvania Assn. of Dyers and Cleaners, Pennsylvania Laundryowners Assn., and Knitted Outerwear Mfrs. Assn. have been recently established at PTI and are now under way. These fellowships involve the investigation of faults in dry cleaning and laundering and the development of improved procedures for the laundering and dry

(Continued on page 328)

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(*Continued from page 326*)

cleaning of fabrics containing the newer synthetic fibers.

• Research projects being conducted by the Air Force include an investigation of the effect of temperature on important properties of textile fibers. The basic laws governing the flow of air through parachute materials are also being investigated. Work is beginning on the determination of energy absorption, rate of loading, and other properties of textile cushioning materials that might be used in parachute cargo-drop kits.

• The Army Quartermaster Corps is conducting the following programs: evaluation of synthetic fibers, particularly in blends with wool; improvement of chicken feathers as a substitute for water-fowl down and feathers; improvement of wearing and laundering qualities of textile materials; and development of flame- and thermal-resistance fabrics.

• Over-all research activities on cotton are too numerous to be listed here in detail. Besides those already mentioned, a vast amount of research is being carried on in private, educational, and government laboratories from Lowell to Lubbock: washfastness, lightfastness, flammability, resistance to dry cleaning, tricot knitting, cleaning of raw cotton, virtually every area of processing from opening to finishing, better fiber packaging, tar spots, chemical modification of fibers, effect of humidity, chemical aids to spinning, microbiological degradation, luster, drape, testing methods, weatherproofing, rotproofing, acetylation, water repellency, and serviceability.

• As for wool, during the coming year the Wool Bureau will be an important sponsor in research at Textile Research Institute. This program will cover improved methods for the measurement of wool fiber properties and will include bending, torsion, and recovery from these distortions. The project also covers the relationship between measurable physical and chemical properties of the fiber and performance in the mill. Changes in wool properties caused by climatic conditions from year to year will be studied with wool sheared each year from the same group of sheep. The relationships between the chemical and physical properties of wool will also be studied.

At Fabric Research Laboratories, the Wool Bureau has a contract to cover studies on pilling, wrinkling, moisture absorption and retention, and the maintenance of loft in apparel fabrics. The Wool Bureau maintains close contact and cooperation with the Dept. of Agriculture in various other raw-wool studies.

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1—Sargent 16 sp. Balling Machine, 1948

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1—Gessner Mod. 20 Press, 1950
1—Gessner 72"x36" Semi-Decater, 1943
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1—Birch 72" Scutcher & Vacuum
1—Roy 86" Napper Grinder
1—P. & W., 66" 4 cyl. Brush & Sander
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- ☐ Have you arranged to have a Bloodmobile make regular visits?
- ☐ Has your management endorsed the local Blood Donor Program?
- ☐ Have you informed your employees of your company's plan of co-operation?
- ☐ Was this information given through Plant Bulletin or House Magazine?
- ☐ Have you conducted a Donor Pledge Campaign in your company?
- ☐ Have you set up a list of volunteers so that efficient plans can be made for scheduling donors?

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P. Materials Handling, Packaging, and Shipping Facilities
Q. Power Generation and Transmission (see also Electrical Equipment)
R. Weaving and Warp Preparation Equipment and Supplies
T. Yarn-Production, Twisting, and Winding Equipment and Supplies

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*Abbott Machine Co.	231																				T
Acme Knitting Mach. & Needle Co.	307																L				
Acme Steel Co.	32																			P	
*Air Perme-Ator Mfg. Co.	264		A																		
Akron Spool & Mfg. Co.	276																				R
Aldon Spinning Mills	309														G						
Alemite Div., Stewart-Warner Corp.	146																M				
Allen-Bradley Co.	3rd Cover													F							
Allen Mfg. Co.	282																			O	
*Allentown Bobbin Wks., Inc.	210																				T
*Allis-Chalmers Mfg. Co.	53 to 56													F						Q	
Alvey Conveyor Mfg. Co.	181																			P	
American Crayon Co.	309													E			L			R	
American & Efird Mills, Inc.	305														G						
*American Lava Corp.	167																L			RT	
American Lumber & Treating Co.	232												B								
*American Monorail Co.	72												D								
American Viscose Corp. (Yarns)	193														G						
American Viscose Corp., Textile Chemical Dept.	46												C								
Antara Chemicals Div. of General Dyestuff Corp.	178												C								
Armco Steel Corp.	66																			O	
Armour & Co.	225												C								
Armstrong Cork Co. (Cots)	68-69																				T
Armstrong Cork Co. (Roll Covering)	209																				R
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*Atkinson, Haserick & Co.	20 to 25																				T
Atlantic Rayon Corp.	270														G						
*Atlas Electric Devices Co.	248																K				
Baldwin Duckworth Div. of Chain Belt Co.	292																			Q	
*Barber Colman Co., Textile Div.	303																				R
Barco Mfg. Co.	222															H					
Barnes Textile Associates, Inc.	308																	N			
Bausch & Lomb Optical Co.	215																	N			
Bellows Co.	254															H					
Bemis Bro. Bag Co.	206																			P	
Bendix Aviation Corp., Eclipse Machine Div.	255																				T
*Bersworth Chemical Co.	291												C								
Binney & Smith Co.	215													E			L			R	
*Brinton Co., H.	183																L				
Bryant Chemical Corp.	142												C								
Buffalo Pumps, Inc.	78															H					
Buschman Co., Inc., E. W.	240																			P	
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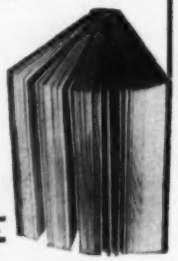

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Textile Fibers Dept.	59	G
*Durant Mfg. Co.	236	K
Durkee-Atwood Co.	49	Q
*Economy Baler Co.	311	P
Edroy Products Co.	306	N
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*Garland Mfg. Co.	196	R
Gaylord Container Corp.	155	P
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Goodrich Co., B. F.	19	Q
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*Heim Co.	2	R
Heineman Corp., O. Div. of Aetna Industrial Corp.	310	G
*Herr Mfg. Co., Inc.	251	T
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Holdsworth Gill Screw Co.	24-25	T
Holt Hardwood Company	299	B
Hubinger Co., The	227	C
*Hunter Machine Co., Jas.	75	E
*Huyck & Sons, F. C.	306	E
Hyatt Bearings Div., General Motors Corp.	243	O Q

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*Industrial Heat Eng'g. Co.	268	E
Industrie-Werke-Karlsruhe	300	E
Ingolstadt	311	T
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Johnson, Chas. B.	202	R
Keever Starch Co.	201	C
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*Kold-Hold Mfg. Co.	184	E O
Kuljian Corp., The	312	N
*Lambeth Rope Corp.	313	RT
*Laurel Soap Mfg. Co., Inc.	268	C T
Lazenby Co., F. A., The	276	T
*Leighton Machine Co.	256	L
Lincoln Engineering Co.	83	M
*Link-Belt Co.	7, 47	Q
*Logemann Bros.	233	P
*Loper Co., Ralph E.	315	N
Main Co., Chas. T.	314	N
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Manheim Mfg. & Belting Co.	82	Q
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Micro Switch Div.	234	F
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*Milton Machine Wks., Inc.	310	R
Minneapolis-Honeywell Reg. Co. Industrial Div.	86-87	K
Micro Switch Div.	234	F
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Mobilift Corp.	194	P
*Monsanto Chemical Co., Textile Chemical Dept.	81	C
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*Mt. Hope Machinery Co.	304	E
Müller, Jakob	314	R
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Reliance Elec. & Eng'g. Co.	279	F Q
Reynolds Metals Co.	283	O
*Rhoads & Sons, J. E.	5	Q R
Richmond Oil, Soap & Chem. Co.	274	C
*Ridge Tool Co.	188	H
*Rohm & Haas Co.	289	C
Rollway Bearing Co., Inc.	235	O Q
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Ryerson & Son Inc., J. T.	136	O
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Schweiter Ltd.	30	T
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*Scott Testers, Inc.	295	K
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Sill Industries	297	E
*Simco Co., The	278	E L RT
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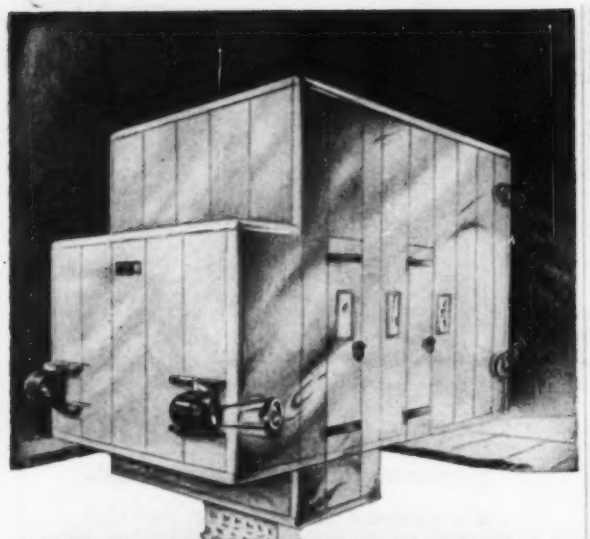

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Statikil	316	F T
Star Woolen Co.	12	G N
*Steel Heddle Mfg. Co.	284, 285	R
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Toledo Scale Co.	258	K
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*Torrington Co., The (Bearings)	205	O Q
Tower Iron Works	224	E
Towmotor Corp.	199	P
Unionmatex, Textilmaschinen-Union, G.M.B.H.	37	E RT
*US Bobbin & Shuttle Co.	191	T
*U. S. Ring Traveler Co.	274	T
U. S. Rubber Co., Mechanical Goods Div.	259	T
*Universal Winding Co.	34, 162	T
*Veeder-Root, Inc.	4th Cover	K
Victor Chemical Works	10	C
Victor Ring Traveler Co.	48	T
*Waldron Corp., John	302	E
*Warner Electric Brake & Clutch Co.	26-27	F Q
*Warner & Swasey Co.	52	T
Warren Refining & Chem. Co.	62	M
Watson-Williams Mfg. Co.	315	R
Westinghouse Electric Corp., Air Conditioning Div.	263	A
Lamp Div.	219	F
Micarta Div.	229	O
Motors & Controls	64-65	F Q
Textile Industry	60-61	Q
Whitehead Engineering Co.	276	T
*Whitin Machine Works	30, 57	T
Wildman Mfg. Co.	269	L
Willey & Co., Francis	309	G
*Wolf & Co., Jacques	223	C
Wood's Sons Co., T. B.	311	Q
Yale & Towne Mfg. Co., The	207	P

PROFESSIONAL SERVICES

Barnes Textile Associates	308
Eaton & Bell	318
Kuljian Corp.	312
Loper & Co., R. E.	315
Main Co., Charles T.	314

SEARCHLIGHT SECTION
(Classified Advertising)
H. E. Hilty, Mgr.

EMPLOYMENT

Positions Vacant	318
Selling Opportunities Offered	318
Positions Wanted	318
Selling Opportunities Wanted	318
Employment Services	318
Special Services	318

BUSINESS OPPORTUNITIES

Offered	318

EQUIPMENT
(Used or Surplus New)

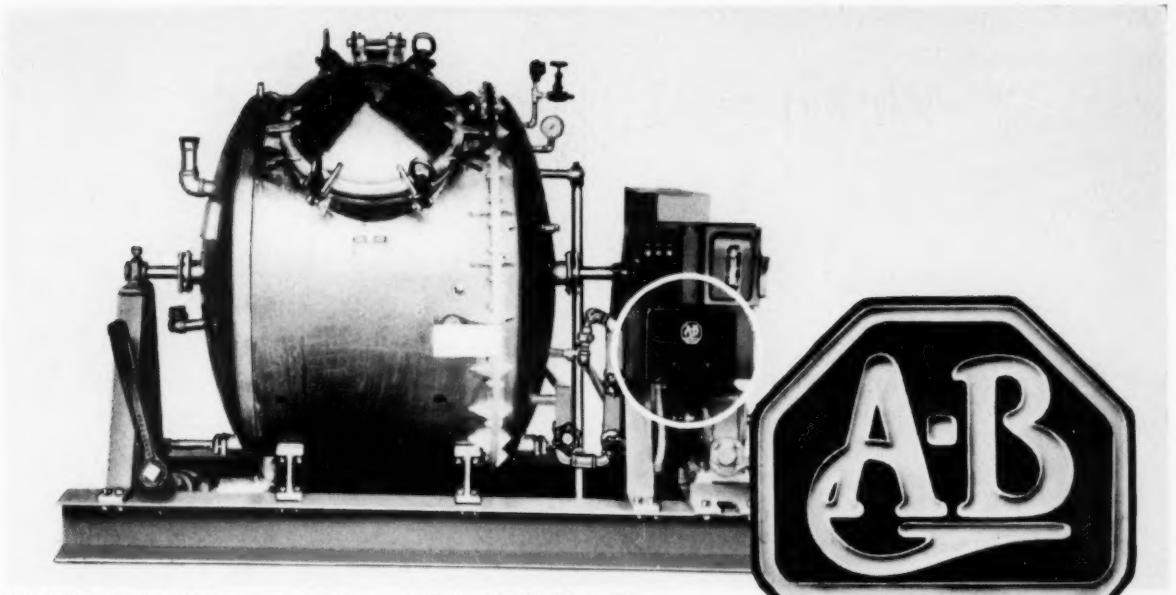
For Sale	319-329

WANTED

Equipment	328

ADVERTISERS INDEX

A B C Personnel Inc.	318
Bialek & Co., Theodore	320
Blank Co., Inc., A. & M.	326
Blank, Moe	328
Bresani, Joseph	327
Collins & Aikman Corp.	319
Consolidated Products Co., Inc.	329
Cornell Sales	324
Cresent Corp.	323
Doyle & Miller	328
Electric Equipment Co.	320
Fitzgerald, James F.	327
Gaines Textile Machinery Co., Inc.	320
Greene, Marshall	322
Industrial Products of America	322
Lewith Machinery Corp., Wilson	324
Maanexit Spinning Co.	329
McCaffrey & Son, Inc.	329
McCloskey Inc., John J.	320
McDowell Associates Inc.	320
McKittrick Co., Frank C.	325
Miller Machinery Co.	322
New England Products Co.	328
Pawtucket Mill Supply Co., Inc.	327
Pennsylvania Spool & Equipment Co.	322
Rabinowitz & Sons, Wm.	321
Raymond Service Inc., Chas. P.	318
Republic Textile Equipment Co.	324
Solomon, Michael	328
Speed & Co., James	328
Standard Mill Supply Co.	329
Stave & Kessler	329
Textile Auxiliaries	322
Velvet Textile Corp.	327
Wheeler Company, Frank W.	329
Whitehead Supply & Engineering Co.	328
Windle & Co., J. H.	329



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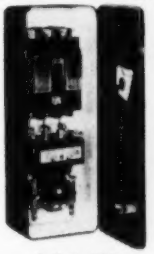

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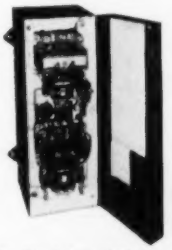

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